



Operation/Reference Guide

TPI-PRO

Total Presentation Interface

TPI-PRO-2

TPI-PRO-4



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TPI-PRO (Total Presentation Interface)

Overview

The TPI-PRO (*Total Presentation Interface*) transforms third party touch screens into interactive displays with stunning control graphics and animation just like AMX Modero Touch Panels.

Using the TPI-PRO, third party touch screens can simultaneously display up to 4 fully-scalable video windows, each supporting Composite, S-Video, Component, and VGA signals. Classrooms, courtrooms and conference rooms can use the TPI-PRO to easily switch between any of the four simultaneously displayed sources on the fly, as well as control content in real-time.

The TPI-PRO is the perfect tool to use with any large plasma or LCD display equipped with a touch overlay. Alternatively, the TPI-PRO output can be displayed on any monitor or projector and a USB keyboard/mouse can be used to navigate the system.

The TPI-PRO receives control and touch point information from a variety of pointing devices (i.e. touch screen, mouse, or keyboard), and connects to the control system via Ethernet.



FIG. 1 TPI-PRO

The TPI-PRO is available in two versions:

- The TPI-PRO-4 (**FG2275-104**) supports up to four video/RGB inputs.
- The TPI-PRO-2 (**FG2275-102**) supports up to two video/RGB inputs.

Both TPI-PROs support high resolution inputs/outputs:

- **Inputs (2 or 4):** Accepts S-Video, Composite, Component (up to 1080p), and VGA (up to 1920x1200). Inputs can be scaled to fit into independent windows or viewed full-screen.
- **Outputs (2):** VGA up to 1920x1200 (WUXGA) at 60 Hz.

Basic features of both include:

- Up to 4 video or graphics windows can be simultaneously displayed and controlled
- USB (wired and wireless) mouse pass-through allows the presenter to view and control up to four computers from one display

TPI-PRO Specifications

The following table lists the specifications for the TPI-PRO-4 and TPI-PRO-2.

Note that the primary difference between the TPI-PRO-4 and TPI-PRO-2 is in the number of inputs. In terms of functionality and specifications, they are otherwise identical. Therefore, the specifications listed below apply to both versions, unless specifically noted.

TPI-PRO Specifications	
• Power Requirements:	<ul style="list-style-type: none"> • Constant current draw: 2.6 A @ 12 VDC • The PSN6.5 Power Supply (FG423-41 - <i>not included</i>) is recommended, to accommodate all possible configurations and respective power draws.
• Memory:	<ul style="list-style-type: none"> • 256 MB SDRAM • 256 MB disk memory

TPI-PRO Specifications (Cont.)	
<ul style="list-style-type: none"> • Supported Video Resolutions: 	Input Composite Video and S-Video: <ul style="list-style-type: none"> • NTSC M/J • NTSC 4.43 • PAL B/D/I/G/H • PAL 60 • PAL M • PAL N • PAL Nc • SECAM B/D/G/K/L Input Component Video: <ul style="list-style-type: none"> • NTSC 480i, 480p • PAL 576i, 576p 720p, 1080i, 1080p
<ul style="list-style-type: none"> • Supported Audio Sample Rates: 	48000Hz, 44100Hz, 32000Hz, 24000Hz, 22050Hz, 16000Hz, 12000Hz, 11025Hz, and 8000Hz.
Front Panel Components	
<ul style="list-style-type: none"> • Power button/LED: 	Toggles the unit off and on. Note: The TPI-PRO will power ON when the power supply is connected. Once power is applied, use the Power button to toggle the unit off and on. <ul style="list-style-type: none"> • Light Off: Power to the unit is either not plugged in, below approximately 10VDC, above approximately 19VDC, or cross-wired. • Constant Green: Power to the unit is within nominal voltage limits (between 10VDC and 19VDC, approximately), the unit is on, and all internal power supplies are operating normally. • Constant Yellow: Power to the unit is within nominal voltage limits (between 10VDC and 19VDC, approximately) and the unit has been turned off by pressing the power switch for more than two seconds. • Flashing Yellow: Power to the unit is within nominal voltage limits (between 10VDC and 19VDC, approximately), but one or more of the internal power supplies are not operating correctly. The unit needs to be serviced. Contact AMX Technical Support for further instructions.
<ul style="list-style-type: none"> • USB Type-A Host ports: 	2 USB ports that can be used for a keyboard, mouse, external storage unit, or USB-capable touch panel interface. Note: Do not use a USB hub to connect multiple USB devices to the TPI-PRO.
<ul style="list-style-type: none"> • Serial port: 	DB9 connector (male) connects to a DB9 serial port on a PC, for serial communication.
<ul style="list-style-type: none"> • Status LED: 	<ul style="list-style-type: none"> • Constant ON: No communication with the NetLinx Master • Blinking: In communication with the NetLinx Master
<ul style="list-style-type: none"> • Input LEDs: 	Yellow LEDs indicate a valid input signal on each source input (1-4 on the TPI-PRO-4, 1-2 on the TPI-PRO-2).

TPI-PRO Specifications (Cont.)	
Front Panel Components (Cont.)	
<ul style="list-style-type: none"> • Buttons: 	<p>Four white buttons provide access to the following configuration options:</p> <ul style="list-style-type: none"> • RESOLUTION: Opens a screen used to select the TPI-PRO output video signal resolution, ranging from 640 x 480@60Hz to 1920 x 1200@60Hz. This output resolution setting must not be greater than the resolution on the connected panel. Refer to the <i>Setting the Output Resolution</i> section on page 26. • TOUCH: Opens the <i>Panel Information</i> page, where you can select from a series of serial touch panel drivers, and select the driver that corresponds to the serial touch panel connected to the TPI-PRO (via the TOUCH INPUT connector). Refer to the <i>Setting the Touch Drivers (Serial Touch Monitors Only)</i> section on page 27 for more information. • CALIBRATE: Opens the <i>Calibration</i> page, displaying a series of crosshairs. These crosshairs are used to calibrate the touch device being used. Refer to the <i>Calibrating the TPI-PRO</i> section on page 28. • SETUP: Opens the TPI-PRO firmware setup menu. Refer to the <i>TPI-PRO Configuration Pages</i> section on page 47.
Rear Panel Components	
<ul style="list-style-type: none"> • VIDEO/VGA Inputs: 	<p>HD-15 connectors, one per input source (1-4 on the TPI-PRO-4, 1-2 on the TPI-PRO-2).</p> <p>Each connector supports VGA graphics, S-video, composite video, and component video.</p>
<ul style="list-style-type: none"> • VGA Outputs: 	<p>2 HD-15 connectors:</p> <ul style="list-style-type: none"> • 1 connector for the touch-panel control display which displays the video feeds, G4 graphics, external windowed video/graphics inputs, and annotation graphics (G4 graphics can be turned off under program control). • 1 connector for the public-view non-touch monitor which displays only the video feeds, G4 graphics, external windowed video/graphics inputs, and annotation graphics (G4 graphics can be turned off under program control). • Both outputs use the same resolution settings. <p>Each output can send a maximum resolution of 1920 x 1200@60 Hz.</p> <p>Note: The TPI-PRO does not provide Component (YPbPr) or Interlaced outputs. It provides 1920x1080 Progressive RGBHV (the same resolution as 1080p, but it in the RGB color space).</p>
<ul style="list-style-type: none"> • Source TOUCH, KEYBOARD/MOUSE USB ports: 	<p>2 or 4 USB Type-B device ports, one per source computer—for source USB Touch Monitor, mouse/keyboard control (1-4 on the TPI-PRO-4, 1-2 on the TPI-PRO-2).</p> <p>Note: Do not use a USB hub to connect multiple USB devices to the TPI-PRO.</p>
<ul style="list-style-type: none"> • Host USB Touch Monitor KEYBOARD/MOUSE USB ports: 	<p>2 USB Type-A ports that can be used for a keyboard, mouse, external storage unit, or USB-capable touch panel interface.</p> <p>Note: Do not use a USB hub to connect multiple USB devices to the TPI-PRO.</p>
<ul style="list-style-type: none"> • ETHERNET 10/100 port: 	<p>RJ-45 port provides 10/100 Mbps communication with the NetLinX Master (via ICSP protocol over Ethernet).</p> <ul style="list-style-type: none"> • The Ethernet port automatically negotiates the connection speed (10 Mbps or 100 Mbps), and whether to use half duplex or full duplex mode. • This communication is reflected via the front ICSP LED.
<ul style="list-style-type: none"> • TOUCH INPUT port: 	<p>RS-232 (DB9) 9-pin serial port provides connectivity to a pointer device (i.e. touch screen) that requires a serial connection.</p>
<ul style="list-style-type: none"> • AUDIO OUT connector: 	<p>3.5mm mini-jack provides stereo output - for use with line-level (0.707 VRMS) non-amplified stereo output only.</p>
<ul style="list-style-type: none"> • Power connector: 	<p>2-pin 3.5 mm mini-Phoenix connector.</p>

TPI-PRO Specifications (Cont.)	
• Serial Touch Drivers:	<p>Note: Go to http://www.amx.com/techdocs/TPI-PRO.Supported.Touch.Monitors.xls to view/download the most recent List of Touch Monitors and USB Touch Drivers Tested with the TPI-PRO (including the most current listing of tested serial touch panel drivers).</p> <p>Refer to the <i>Supported Pixel Display and Refresh Rates</i> section on page 5 for a detailed list of Touch Monitors that have been tested with the TPI-PRO.</p>
• USB Drivers:	<p>USB Touch drivers are automatically loaded when the USB Touch Monitor is detected.</p> <p>Note: Go to http://www.amx.com/techdocs/TPI-PRO.Supported.Touch.Monitors.xls to view/download the most recent List of Touch Monitors and USB / Serial Touch Drivers Tested with the TPI-PRO (including the most current listing of tested USB touch panel drivers).</p>
• Button Assignments:	<p>Button assignments can be modified in TPD4 (not on the TPI-PRO.)</p> <ul style="list-style-type: none"> • Button channel range: 1 - 4000 button push and feedback (per address port) • Button variable text range: 1 - 4000 (per address port) • Button states range: 1 - 256 (General Button; 1 = Off State, 2 = On State) • Level range: 1 - 600 (Default level value 0-255, can be set up to 1-65535) • Address port range: 1 - 100
• Communication/ Programming:	<p>Master communication and programming is available via an Ethernet connection. Refer to the <i>Configuring the Ethernet Connection on the NetLinx Master</i> section on page 39 for more information.</p> <p>There are several methods of TPI-PRO communication and programming available:</p> <ul style="list-style-type: none"> • DHCP - Refer to the <i>Configuring a DHCP Address</i> section on page 36 for more information. • Static IP - Refer to the <i>Configuring a Static IP Address</i> section on page 37. • URL - Refer to the <i>NetLinx Master IP Address - URL Mode</i> section on page 39. • Listen - Refer to the <i>NetLinx Master IP Address - Listen Mode</i> section on page 41. • Auto - Refer to the <i>NetLinx Master Ethernet IP Address - Auto Mode</i> section on page 42. • NPD (UDP) - Refer to the <i>NetLinx Master Ethernet IP Address - NDP (UDP) Mode</i> section on page 42. • URL (UDP) - Refer to the <i>NetLinx Master Ethernet IP Address - URL (UDP) Mode</i> section on page 45.
• Enclosure:	Metal with black matte finish
• Operating/ Storage Environment:	<ul style="list-style-type: none"> • Operating Temperature: 0° C (32° F) to 40° C (104° F) • Operating Humidity: 5% to 85% RH Non-Condensing • Storage Temperature: -10° C (14° F) to 70° C (158° F) • Storage Humidity: 0% to 85% RH Non-Condensing
• Dimensions (HWD):	<ul style="list-style-type: none"> • 2.24" x 17.00" x 10.27" • 5.69 cm x 43.18 cm x 26.09 cm
• Weight:	8.25 lbs (3.74 kg)
• Certifications:	<ul style="list-style-type: none"> • RoHS • FCC (Class B) • CE • IEC/EN60950
• Included Accessories:	<ul style="list-style-type: none"> • 2-pin PWR connector (41-5025) • Assembly Kit (Four-#10-32 screws and Four-#10 washers) (KA0001) • Rack Ear brackets for shelf, wall, and under-table mounting (60-0900-03) • NXA-USBTN, TakeNote USB Computer Control Stick (FG070-603)

TPI-PRO Specifications (Cont.)	
• Other AMX Equipment:	<ul style="list-style-type: none"> • PSN6.5: Power Supply with 3.5 mm mini-Phoenix connector (FG423-40) • CC-HD15M-HD15M – HD-15 Male to HD-15 Male, 6' cable (FG10-2170-01) • CC-HD15M-RCAM3 – HD-15 to 3x Male RCA connectors for component or composite sources (FG10-2170-03) • CC-HD15M-SVIDM – HD-15 Male to S-Video Male connector, 6' cable (FG10-2170-04)

Supported Pixel Display and Refresh Rates

The supported pixel display and refresh rates are listed below:

- 640x480@60
- 640x480@72
- 640x480@75
- 800x600@60
- 800x600@72
- 800x600@75
- 848x480@60
- 1024x768@60
- 1024x768@70
- 1024x768@75
- 1280x720@60 VESA
- 1280x768@60
- **1280x1024@60 (default)**
- 1280x1024@75
- 1360x768@60
- 1440x900@60
- 1680x1050@60
- 1600x1200@60
- 1920x1080@60 VESA rb
- 1920x1200@60 VESA rb

Note: "rb" indicates VESA reduced blinking timings



The TPI-PRO does not provide Component (YPbPr) or Interlaced outputs. It provides 1920x1080 Progressive RGBHV (the same resolution as 1080p, but it in the RGB color space).

Supported Touch Monitors and USB Touch Drivers

Go to <http://www.amx.com/techdocs/TPI-PRO.Supported.Touch.Monitors.xls> to view/download the most recent List of Touch Monitors and USB Touch Drivers Tested with the TPI-PRO.

Rack-Mounting the TPI-PRO



Read the Safety Instructions before rack-mounting the TPI-PRO.

Safety Instructions

- Connect the unit only to a properly-rated supply circuit.
- DO NOT stand other units directly on top of the TPI-PRO when it is rack mounted, as this will place excessive strain on the mounting brackets.
- **ALWAYS** ensure that the rack enclosure is adequately ventilated.

The TPI-PRO occupies one rack unit in a standard 19" equipment rack.

The included mounting brackets can be rotated 90° in any direction to accommodate several different mounting options, including tabletop, under/over the table, and vertical wall mounting.

The following steps apply to all of these mounting options.

1. Discharge any static electricity from your body by touching a grounded metal object.

2. Position and install the mounting brackets, as shown in FIG. 2 on page 6, using the supplied mounting screws.

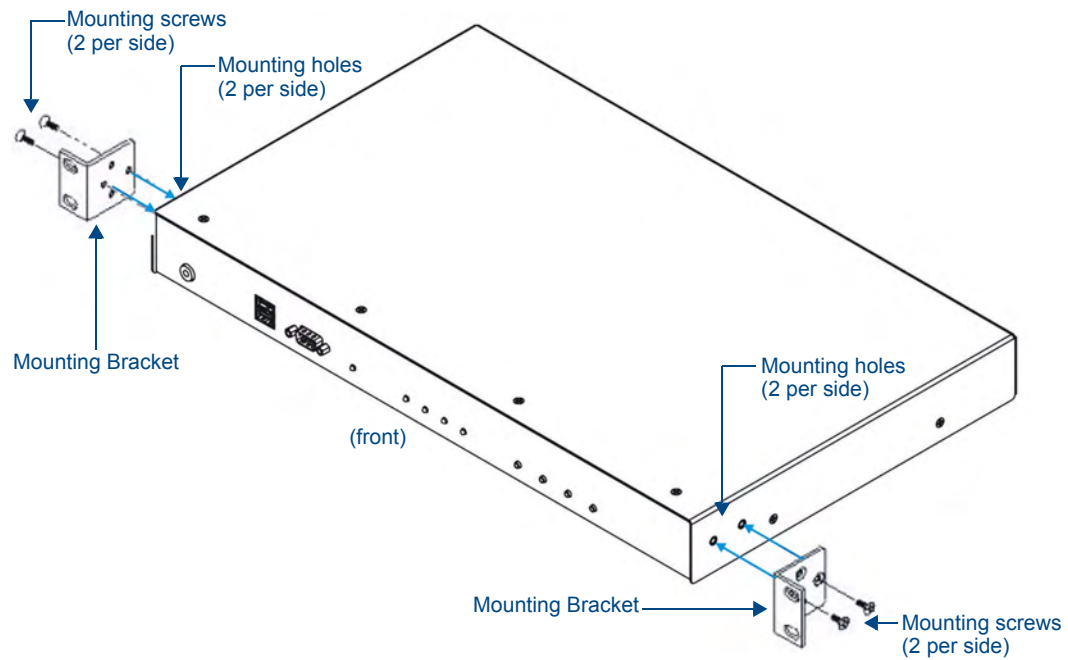


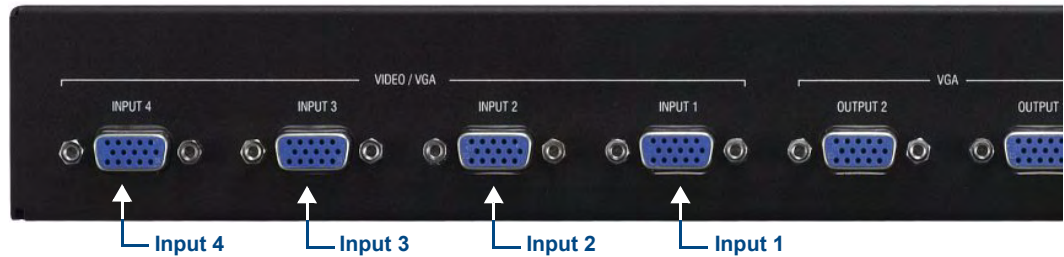
FIG. 2 Rack-Mounting the TPI-PRO

3. Connect any applicable wires to the TPI-PRO.
Refer to the *Rear Panel Connectors* section on page 12 for wiring diagrams and pinout descriptions.

Cable Details and Pinout Information

Overview

The VIDEO/VGA Input connectors on the rear panel are used to connect source input devices to the TPI-PRO (FIG. 3). The TPI-PRO routes video from connected source input devices to the connected output devices. Each connector supports VGA, S-video, Composite and Component inputs.



Note: The TPI-PRO-4 (shown here) has four VIDEO/VGA Inputs, the TPI-PRO-2 has two Inputs

FIG. 3 VIDEO/VGA Inputs

In order to connect non-VGA input source devices (S-Video, Composite and Component) to the VIDEO/VGA Input connectors, the following (optional) adapter cables are required:

Input Adapter Cables			
Name	Description	Length	FG#
• CC-HD15M-RCAM3	HD-15 to 3x Male RCA Connectors	6' (1.828m)	FG10-2170-03
• CC-HD15M-HD15M	HD-15 Male to HD-15 Male Connector	6' (1.828m)	FG10-2170-01
• CC-HD15M-SVIDM	HD-15 Male to S-Video Male Connector	6' (1.828m)	FG10-2170-04

VGA-to-Component (RGB)/Composite Cable Pinout Information

The following table lists the pinout configuration for HD-15 connector to Component (RGB) or Composite connectors:

VGA IN to Component (RGB) or Composite Pinouts					
VGA Pin	VGA Signal	Component Signal	Red RCA	Green RCA	Blue RCA
1	Red	Pr signal	center pin		
2	Green	Y signal		center pin	
3	Blue	Pb signal			center pin
4	N/C				
5	GND				
6	RAGND	Pr - Return	shield		
7	GAGND	Y - Return		shield	
8	BAGND	Pb - Return			shield
9	+5VDC				
10	SAGND				
11	N/A				
12	DDC_SDA				
13	HSYNC				
14	VSYNC				
15	DDC_SDL				

VGA-to-S-Video Cable Pinout Information

The following table lists the pinout configuration for HD-15 connector to S-Video connectors (corresponding to the CC-HD15M-SVIDM HD-15 Male to S-Video Male Connector (FG10-2170-04):

VGA IN to S-Video Pinouts			
VGA Pin	VGA Signal	S-Video Signal	S-Video Connector Pin
1	Red		
2	Green	Luminance (Y)	3
3	Blue	Chrominance (C)	4
4	N/C		
5	GND		
6	RAGND		
7	GAGND	Luminance (Y) - Return	1
8	BAGND	Chrominance (C) - Return	2
9	+5VDC		
10	SAGND		
11	N/A		
12	DDC_SDA		
13	HSYNC		
14	VSYNC		
15	DDC_SDL		

Wiring and Device Connections

Overview

The only physical differences between the TPI-PRO-4 and TPI-PRO-2 are the number of VIDEO/VGA Inputs on the rear panel (and their associated Input LEDs on the front panel), and the number of USB Source Interface ports on the rear panel.

- The TPI-PRO-4 features four Inputs/Input LEDs and four USB Source Interface ports.
- The TPI-PRO-2 features two Inputs/Input LEDs and four USB Source Interface ports.

Front Panel Components

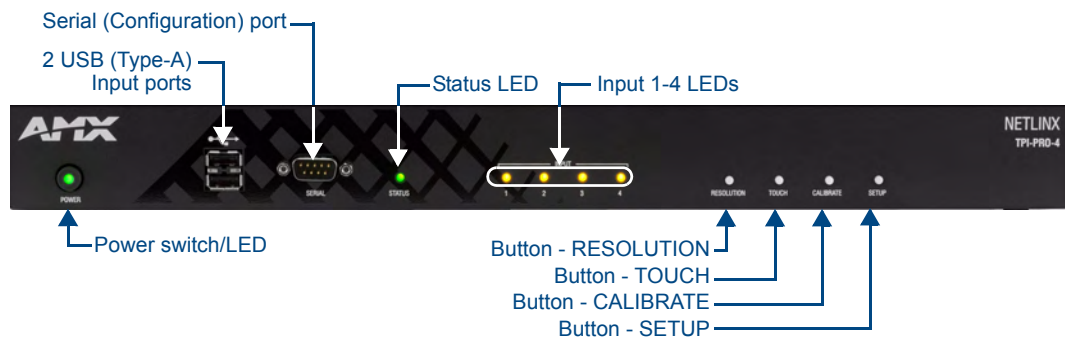


FIG. 4 Front Panel Components (TPI-PRO-4 shown)



FIG. 4 shows the TPI-PRO-4, with four Input LEDs (which correspond to VIDEO/VGA Inputs 1-4 on the rear panel). The TPI-PRO-2 has two Input LEDs, corresponding to VIDEO/VGA Inputs 1-2.

Rear Panel Components

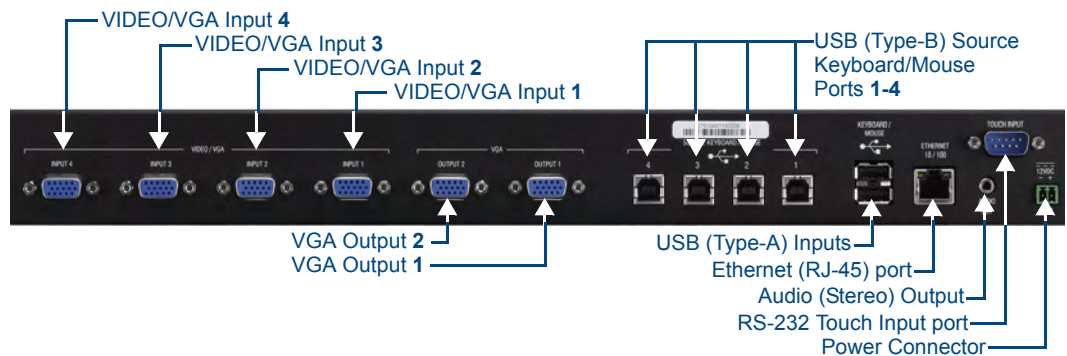


FIG. 5 Rear Panel Components (TPI-PRO-4 shown)



FIG. 5 shows the TPI-PRO-4, with four VIDEO/VGA Inputs and four USB (Type-B) Source Keyboard/Mouse Ports. The TPI-PRO-2 has two VIDEO/VGA Inputs and two USB (Type-B) Source Keyboard/Mouse Ports.

Connections Overview

FIG. 6 illustrates how all of the basic connections on the TPI-PRO are used in a basic installation:

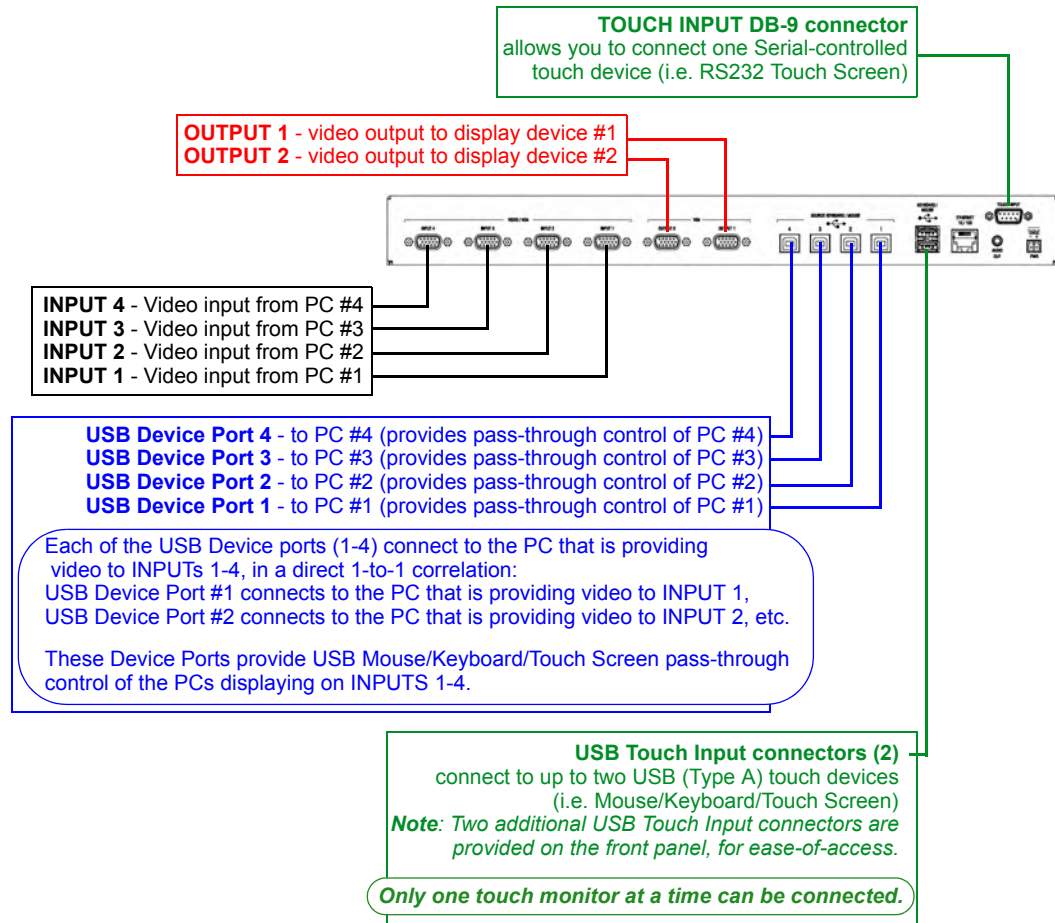


FIG. 6 TPI-PRO - Basic Wiring Connections

Front Panel Connectors

The front panel connectors on both versions of the TPI-PRO are identical.

USB (Type A) Input ports

The two USB (Type A) Input ports on the front panel are used to connect USB touch/input devices to the TPI-PRO (FIG. 7).



FIG. 7 Front Panel USB (Type A) Input Ports



Touch/input devices can consist of any combination of a keyboard, mouse, or USB-capable touch screen.

Note that there are two additional USB (Type A) Input ports on the rear panel. All of the USB Input ports have the same functionality; they are provided on both sides of the TPI-PRO for ease-of-access (see FIG. 12 on page 14).

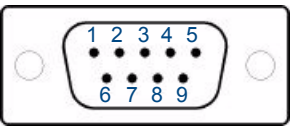
SERIAL Port

The SERIAL (DB-9) port can be used for direct Serial (RS-232) configuration (FIG. 8).



FIG. 8 SERIAL (DB-9) Port

SERIAL Port - Pinouts and Signals			
Pin	Signal	Pin	Signal
1	n/c	6	n/c
2	RX	7	RTS
3	TX	8	CTS
4	n/c	9	n/c
5	GND		

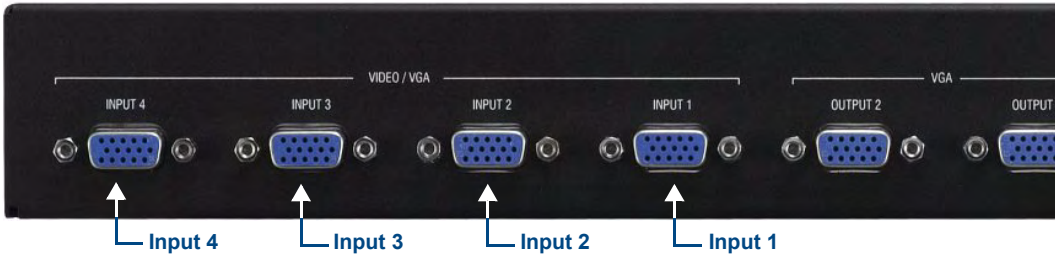


See the *Terminal/Telnet Commands* section on page 141 for a listing of supported Terminal/Telnet commands.

Rear Panel Connectors

VIDEO/VGA Inputs

The VIDEO/VGA Input connectors on the rear panel are used to connect source input devices to the TPI-PRO (FIG. 9). The TPI-PRO routes video from connected source input devices to the connected output devices. Each connector supports VGA, S-video, Composite and Component inputs.



Note: The TPI-PRO-4 (shown here) has four VIDEO/VGA Inputs, the TPI-PRO-2 has two Inputs

FIG. 9 VIDEO/VGA Inputs

In order to connect non-VGA input source devices (S-Video, Composite and Component) to the VIDEO/VGA Input connectors, the following (optional) adapter cables are required:

Input Adapter Cables			
Name	Description	Length	FG#
• CC-HD15M-RCAM3	HD-15 to 3x Male RCA Connectors	6' (1.828m)	FG10-2170-03
• CC-HD15M-HD15M	HD-15 Male to HD-15 Male Connector	6' (1.828m)	FG10-2170-01
• CC-HD15M-SVIDM	HD-15 Male to S-Video Male Connector	6' (1.828m)	FG10-2170-04



NOTE

The TPI-PRO and the adapter cables listed above utilize industry-standard pinouts.

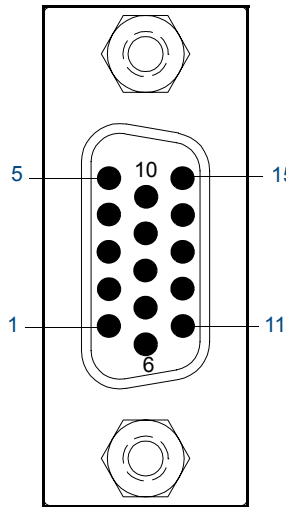
VGA Outputs

Each TPI-PRO has two VGA Output connectors (FIG. 10).



FIG. 10 VIDEO/VGA Inputs

You can connect the VGA source equipment HD-15 (male) connector (from the touch device) to the VGA OUT HD-15 high-density connector (female) on the rear panel of the TPI-PRO. The output devices display video from source input devices routing through the TPI-PRO.

VGA OUT HD-15 Connector Pinouts			 VGA HD-15 (male)
Pin	Signal	Function	
1	Red	Red signals	
2	Green	Green signals	
3	Blue	Blue signals	
4	N/C	Monitor ID bit 2	
5	GND	Signal Ground	
6	RAGND	Red analog ground	
7	GAGND	Green analog ground	
8	BAGND	Blue analog ground	
9	+5VDC	Not used	
10	SAGND	Synchronization analog ground	
11	N/A	Monitor ID bit 0	
12	DDC_SDA	Monitor ID bit 1	
13	HSYNC	Horizontal synchronization signal	
14	VSYNC	Vertical synchronization signal	
15	DDC_SDL	Monitor ID bit 3	

SOURCE KEYBOARD/MOUSE (USB-Type B) Device Ports 1-4

The USB (Type B) Device ports on the rear panel (labelled "SOURCE KEYBOARD/MOUSE") are used to connect up to four source PCs to the TPI-PRO to provide pass-through control for the connected PCs (FIG. 11).

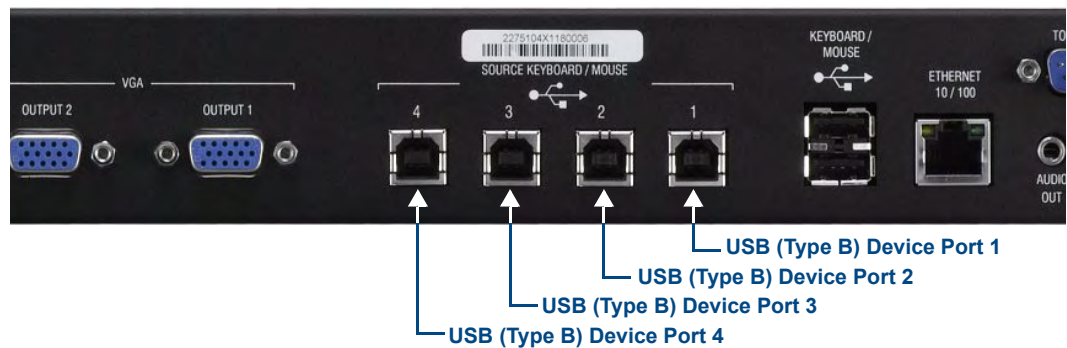


FIG. 11 SOURCE KEYBOARD/MOUSE (USB-Type B) Device Ports



NOTE

The TPI-PRO requires that the host PC uses USB v2.0.

- The TPI-PRO-2 has two USB-Type B Device Ports (corresponding with VIDEO/VGA Inputs 1-2)
- The TPI-PRO-4 has four USB-Type B Device Ports (corresponding with VIDEO/VGA Inputs 1-4)

These numbered USB Device ports correspond to the numbered VIDEO/VGA Inputs:

1. The PC connected to USB Device port #1 has pass-through control of the input device connected to VIDEO/VGA Input #1.
2. The PC connected to USB Device port #2 has pass-through control of the input device connected to VIDEO/VGA Input #2.
3. The PC connected to USB Device port #3 has pass-through control of the input device connected to VIDEO/VGA Input #3 (*TPI-PRO-4 only*).

- The PC connected to USB Device port #4 has pass-through control of the input device connected to VIDEO/VGA Input #4 (*TPI-PRO-4 only*).

USB (Type A) Input ports

The two USB (Type A) Input ports on the rear panel are used to connect USB touch/input devices to the TPI-PRO (FIG. 12).

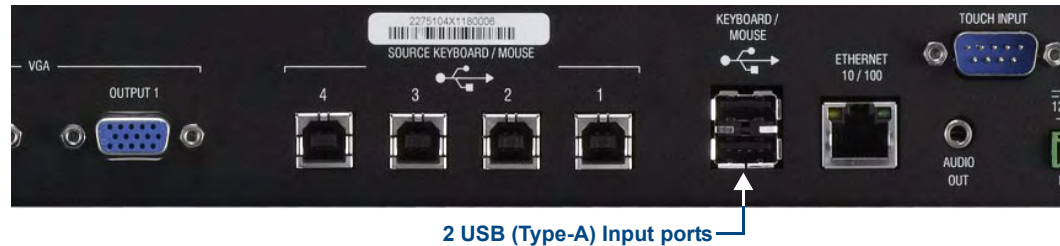


FIG. 12 Rear Panel USB (Type A) Input Ports



Touch/input devices can consist of any combination of a keyboard, mouse, or USB-capable touch screen.

Note that there are two additional USB (Type A) Input ports on the front panel (see FIG. 7 on page 11). All of the USB Input ports have the same functionality; they are provided on both sides of the TPI-PRO for ease-of-access.

ETHERNET 10/100 (RJ-45) Port

The ETHERNET 10/100 (RJ-45) port provides 10/100 Mbps communication with the NetLinX Master via ICSP protocol (FIG. 13).

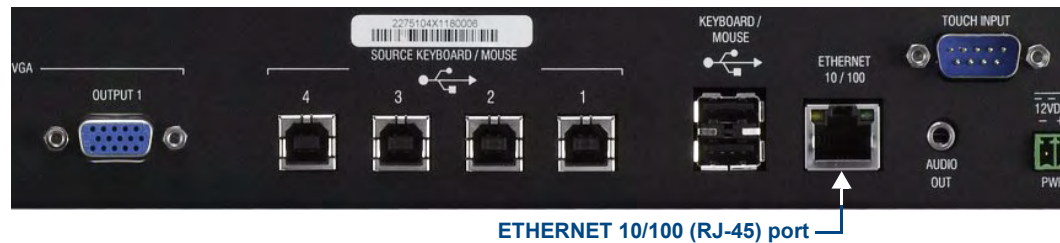


FIG. 13 ETHERNET 10/100 (RJ-45) Port

- The Ethernet port automatically negotiates the connection speed (10 Mbps or 100 Mbps), and whether to use half duplex or full duplex mode.
- FIG. 14 describes the blink activity for the ETHERNET 10/100 Base-T RJ-45 connector LEDs.

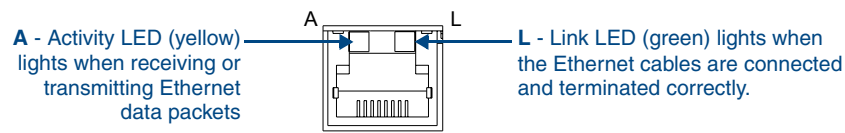


FIG. 14 ETHERNET connector / LEDs

The following table lists the pinouts, signals, and pairing associated with the ETHERNET 10/100 connector.

ETHERNET 10/100 (RJ-45) Port - Pinouts and Signals				
Pin	Signals	Connections	Pairing	Color
1	TX +	1 ----- 1	1 ----- 2	Orange-White
2	TX -	2 ----- 2		Orange
3	RX +	3 ----- 3	3 ----- 6	Green-White
4	no connection	4 ----- 4		Blue
5	no connection	5 ----- 5	4 ----- 5	Blue-White
6	RX -	6 ----- 6		Green
7	no connection	7 ----- 7	7 ----- 8	Brown-White
8	no connection	8 ----- 8		Brown

FIG. 15 diagrams the RJ-45 pinouts and signals for the ETHERNET 10/100 connector and cable.

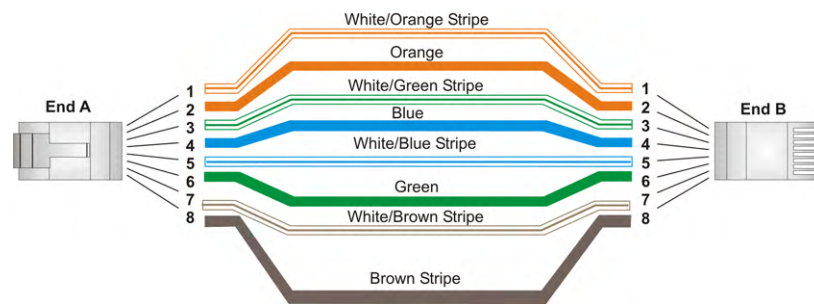


FIG. 15 RJ-45 wiring diagram

TOUCH INPUT (DB-9) Port

The TOUCH INPUT (DB-9) port provides RS-232 serial connectivity for a touch/input device that requires a serial connection (FIG. 16).

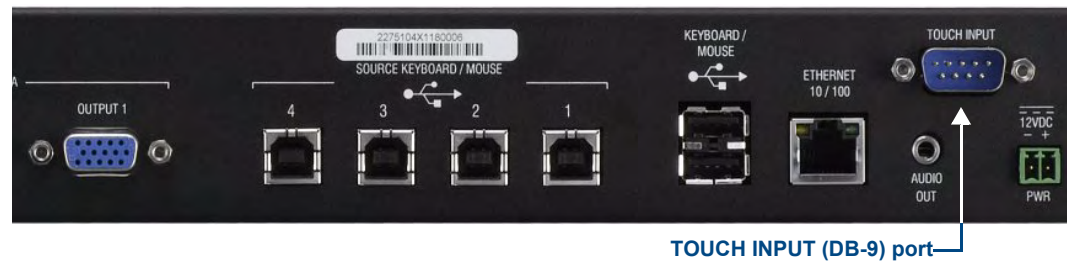
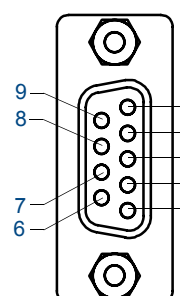
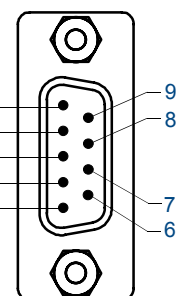


FIG. 16 TOUCH INPUT (DB-9) Port

The following table lists the TOUCH INPUT connector pinouts.

TOUCH INPUT (DB-9) Connector - Pinouts and Signals				
Pin	Signal	Function		
1	N/A	Not used		
2	RXD	Receive data		
3	TXD	Transmit data		
4	DTR	Data terminal ready		
5	GND	Signal ground		
6	DSR	Data set ready		
7	RTS	Request to send		
8	CTS	Clear to send		
9	N/A	Not used		

Female
(from TPI-PRO)
Male
(from touch device)

AUDIO OUT Connector

The AUDIO OUT connector provides analog line-level stereo audio output, via a 3.5mm mini-stereo jack (FIG. 17).

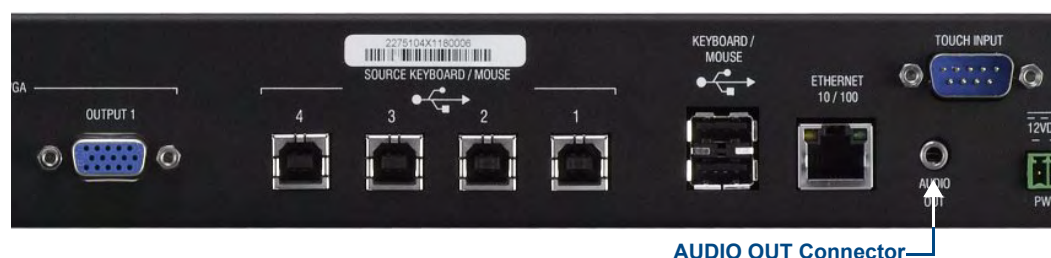


FIG. 17 AUDIO OUT Connector

The TPI-PRO supports WAV and MP3 audio types, at the following sample rates:

Supported WAV / MP3 Audio Sample Rates		
• 48000Hz	• 24000Hz	• 12000Hz
• 44100Hz	• 22050Hz	• 11025Hz
• 32000Hz	• 16000Hz	• 8000Hz

FIG. 18 describes the AUDIO OUT connection pinouts:

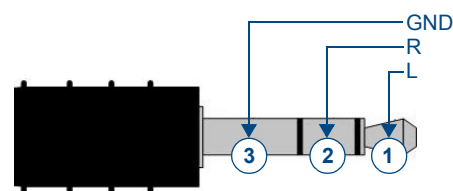


FIG. 18 AUDIO OUT - pinout configuration

12VDC PWR (Power) Connector

The TPI-PRO requires a 12 VDC-compliant power supply to provide power to the TPI-PRO via the 2-pin 3.5 mm mini-Phoenix PWR connector (FIG. 19).

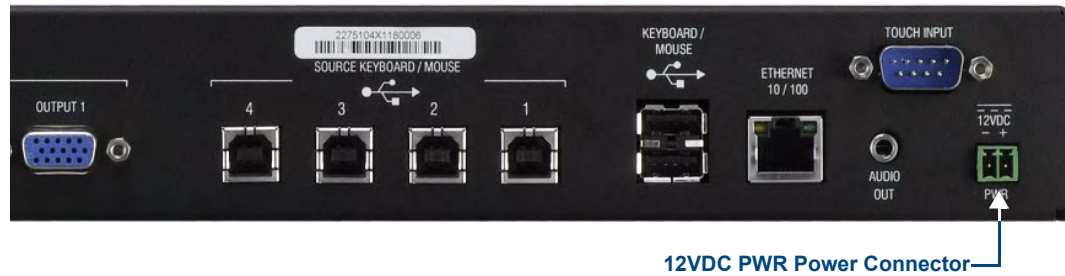


FIG. 19 12VDC PWR (Power) Connector



The TPI-PRO will power ON when the power supply is connected. Once power is applied, use the Power button to toggle the unit off and on.



*Do not connect power to the TPI-PRO until wiring is complete. These units should only have one source of incoming power. Using more than source of power to the panel can result in damage to the internal components and a possible burn out. Apply power to the panels **only after** installation is complete.*

To use the 2-pin 3.5 mm mini-Phoenix connector for use with a 12 VDC-compliant power supply, the incoming PWR and GND wires from the external power supply must be connected to their corresponding locations on the connector (FIG. 20).

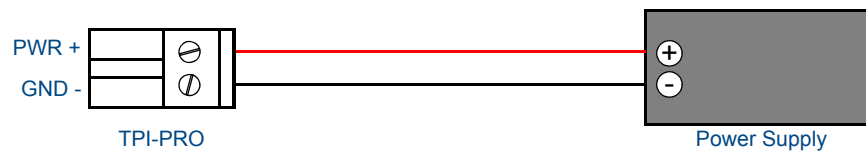


FIG. 20 NetLinx power connector wiring diagram



Never pre-tin wires for compression-type connections.

- Constant current draw: 2.6 A @ 12 VDC
- The PSN6.5 Power Supply (FG423-40 - *not included*) is recommended, to accommodate all possible configurations and respective power draws.

Connecting USB Input Touch Devices

1. Insert the input device USB connectors into the appropriate USB connector on the TPI-PRO.
2. After the splash-screen disappears:
 - If a USB mouse has been connected, a mouse cursor appears on the screen and its location corresponds to the mouse cursor position sent by the external USB mouse.
 - If a USB keyboard has been connected, only on-screen keyboards and keypads will reflect any external keystrokes sent from the external USB keyboard.
 - If you experience problems introducing new devices, you can install the drivers on a remote PC according to manufacturer suggestions with the device connected directly to the remote PC.

Type A & Type B USB Ports

The **Type-A** USB connectors on the front and rear of the TPI-PRO (labelled KEYBOARD/MOUSE) are used to provide touch input signals from a USB keyboard and/or USB mouse (FIG. 21).

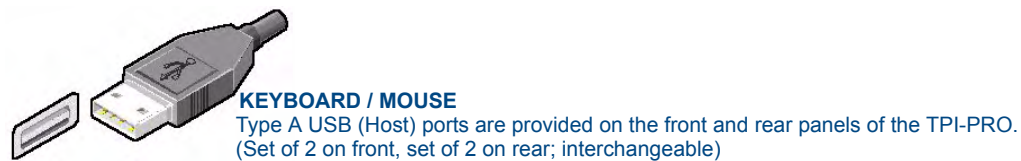


FIG. 21 Type A USB (Host ports)

The **Type-B** USB connectors on the TPI-PRO (rear panel only) are used to provide communication between the TPI-PRO and the PC (FIG. 22).

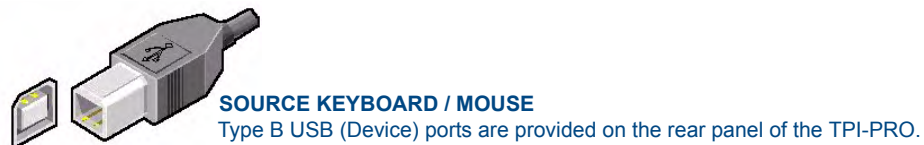


FIG. 22 Type B USB (Device ports)

Notes on USB Connections

- Do not use a USB hub to connect multiple USB devices to the TPI-PRO.
- Removing and reconnecting USB devices from the TPI-PRO may result in a loss of connectivity. If this occurs, reset the TPI-PRO to allow the devices to re-establish connectivity.
- When disconnecting a USB device, wait 5-10 seconds before reconnecting or connecting a new device to allow the TPI-PRO to recognize that the device was disconnected. If connectivity is lost, reset the TPI-PRO to re-establish the connection.



Pass-thru must be enabled when using control devices that are connected to the USB connectors on the rear of the TPI-PRO. See the Configuring the TPI-PRO for Pass-Through Control section on page 21 for details.

System Installation

Overview

FIG. 23 illustrates a typical TPI-PRO installation:

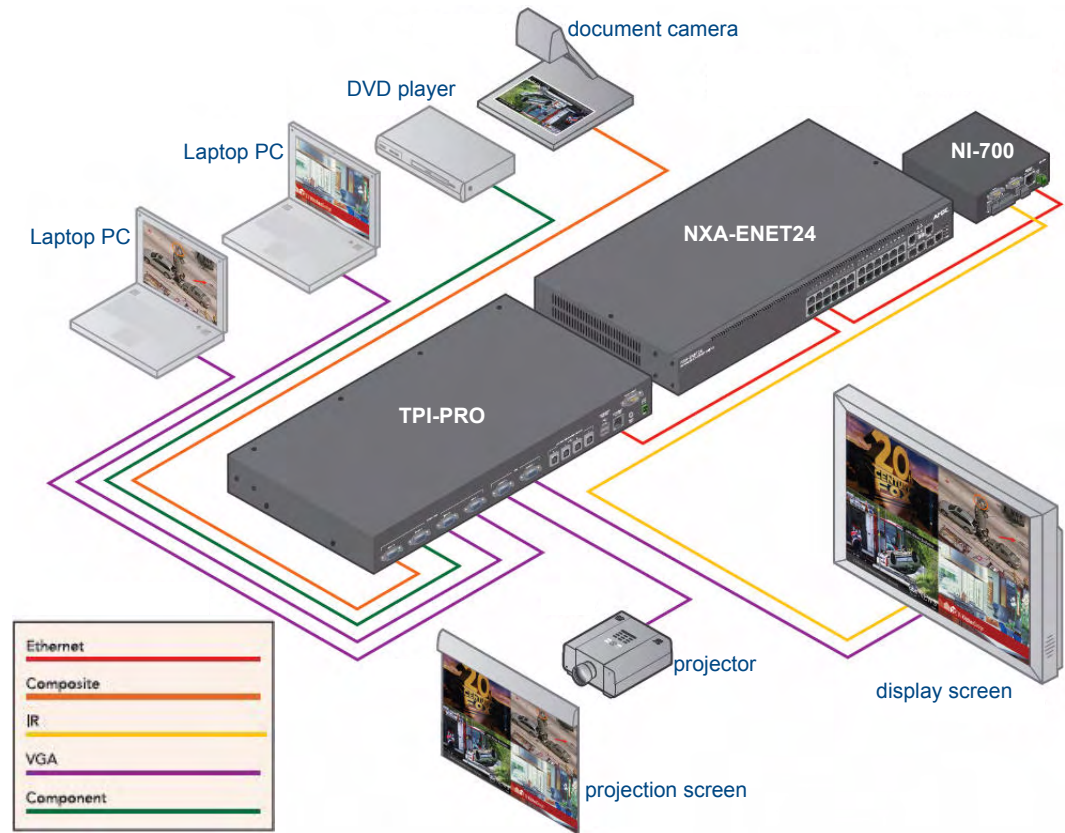


FIG. 23 System Diagram

The following System Diagrams illustrate common applications for the TPI-PRO.

For detailed pinout descriptions for each connector on the TPI-PRO, refer to the *Rear Panel Connectors* section on page 12.

Touch Input via Touch Monitor

FIG. 24 illustrates a typical installation using a **Serial** touch monitor to display output from a video source (in this case, a PC).

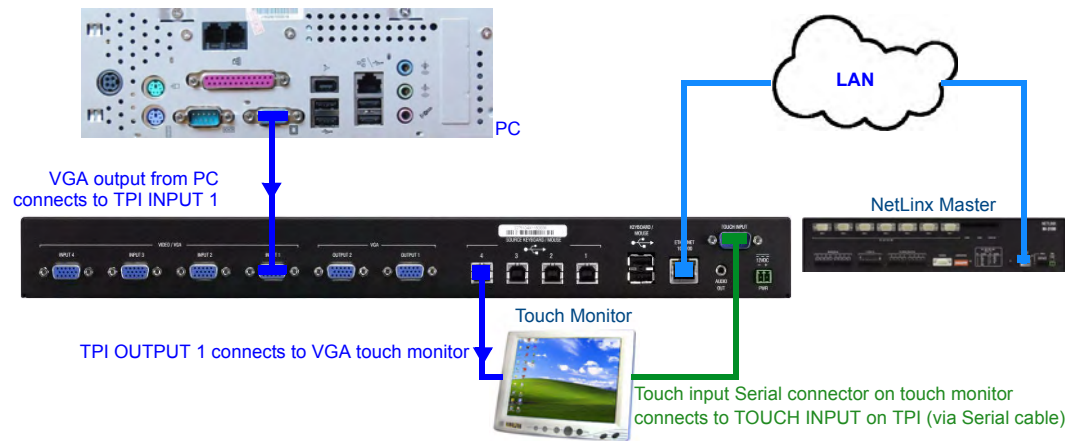


FIG. 24 Example 1: TOUCH INPUT (Serial Touch Monitor)

FIG. 25 illustrates a typical installation using a **USB** touch monitor to display output from a video source.

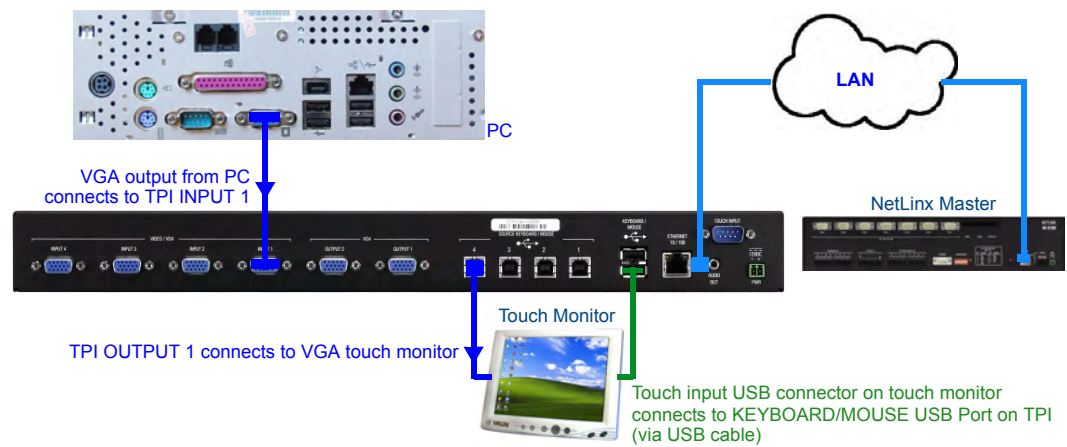


FIG. 25 Example 1: TOUCH INPUT (USB Touch Monitor)

Configuring the TPI-PRO for Touch Monitor Input

1. Discharge any acquired static electricity by touching a grounded metal object; disconnect the incoming power connector from the rear of the TPI-PRO.
2. Connect the touch monitor's touch (keyboard/mouse) connector to the TPI-PRO:
Depending on the compatibilities of the touch monitor, they can connect to either the TOUCH INPUT (DB9) connector or one of the Type-A USB ports (labelled KEYBOARD/MOUSE) on the TPI-PRO.
 - For touch monitors with Serial-touch connectors, use a DB9 Serial cable to connect the touch monitor's touch input connector to the TOUCH INPUT (DB9) connector on the TPI-PRO. Refer to the *TOUCH INPUT (DB-9) Port* section on page 15 for a description of the TOUCH INPUT connector pinouts.
 - For touch monitors with USB-touch connectors, use a USB cable to connect the touch monitor's touch input connector to the KEYBOARD/MOUSE (USB Type A) connector on the TPI-PRO.
3. Connect the touch monitor's video output connector to the VGA OUTPUT 1 port on the TPI-PRO.
4. Connect a VGA video output connector on the PC to the VIDEO/VGA INPUT 1 connector on the TPI-PRO.

5. Apply power to the TPI-PRO.

Mouse Pass-Thru Control

FIG. 26 illustrates a typical installation for using mouse pass-thru control.

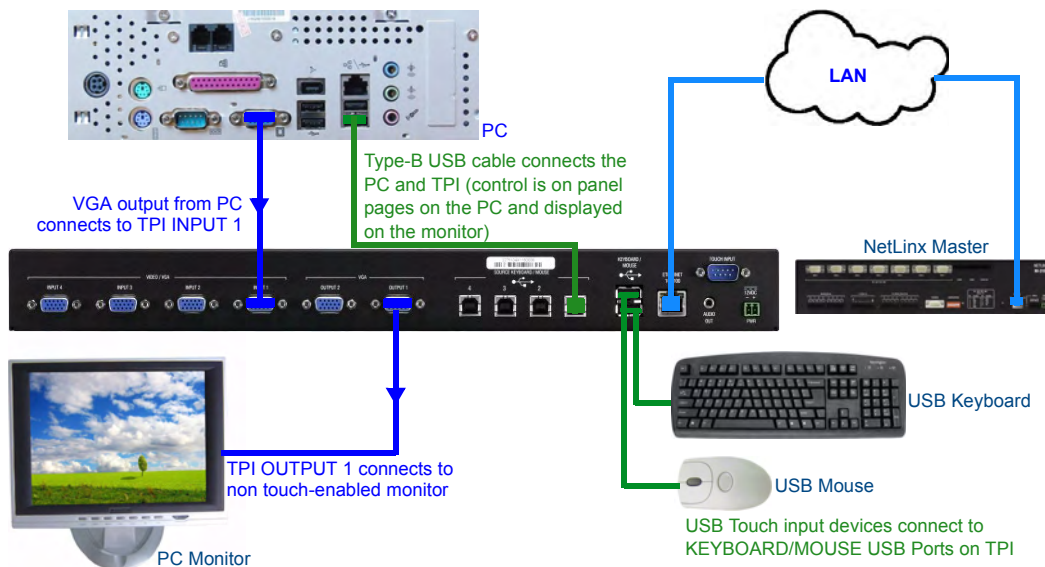


FIG. 26 Example 2: Mouse Pass-Thru Control

To enable a touch response on a panel page routed through a computer, you must enable pass-thru control. Pass-thru control enables the TPI-PRO to act as a control bridge between a computer and a monitor (typically with no touch features).



NOTE

If you experience problems introducing new devices, install the drivers on the remote PC according to manufacturer suggestions with the device connected directly to the remote PC.

Configuring the TPI-PRO for Pass-Through Control

You can control a PC by routing the mouse control through the TPI-PRO and displaying the results on a non-touch enabled monitor. In this scenario, the TPI-PRO is virtually non-existent as it is akin to connecting the monitor and mouse directly to the rear of the computer, thus the term "pass-through control".

In essence, the PC views the TPI-PRO as an adapter connected to a USB touch input device (as shown in FIG. 26 on page 21).

1. Discharge any acquired static electricity by touching a grounded metal object; disconnect the incoming power connector from the rear of the TPI-PRO.
2. Connect a USB mouse to one of the Type-A USB ports on the front or rear of the TPI-PRO.
3. Connect a USB cable from a USB port on the PC to one of the Type-B USB ports on the rear of the TPI-PRO (labelled SOURCE KEYBOARD/MOUSE).
4. Connect a video output on the PC to the VIDEO/VGA Input connector on the rear of the TPI-PRO that corresponds to the Type-B USB port to which the PC is connected. For example:
 - If the PC is connected to Type-B USB port #1, then the video output on the PC must be connected to INPUT 1.
 - If the PC is connected to Type-B USB port #2, then the video output on the PC must be connected to INPUT 2.
 - If the PC is connected to Type-B USB port #3, then the video output on the PC must be connected to INPUT 3 (inputs 3 & 4 available only on the TPI-PRO-4).

- If the PC is connected to Type-B USB port #4, then the video output on the PC must be connected to INPUT 4 (inputs 3 & 4 available only on the TPI-PRO-4).
5. Connect an HD-15 video cable from the output on the monitor to one of the VGA OUTPUT ports on the TPI-PRO.
 6. Apply power to the TPI-PRO.
 7. Code a button on the touch monitor page to enable the pass-thru feature on a selected source input. Toggling this coded panel button will enable/disable the pass-thru feature.



NOTE

You first must set the TPI-PRO to match the resolution of the computer's video output resolution, and then you must adjust the TPI-PRO to fit the available screen on the monitor.

If the image generated from the TPI-PRO is slightly "off", adjust the image using the monitor's on-board video adjustment buttons.

8. Setup the TPI-PRO output resolution using the procedures in the *Setting the Output Resolution* section on page 26.



NOTE

If the TPI-PRO is power cycled, the video alignment settings established through the Video and/or RGB pages will be reset, unless the adjusted values have been saved. Refer to the Setup - Video Settings Page section on page 56 for more information.

9. Use the monitor's video adjust buttons to align the incoming video signal to fit into the available screen area. Initially positioning the incoming video can reduce the necessity of later adjustments (H-position, V-position, H-size, etc.) through the RGB Setup page.

Using a Touch Monitor for Mouse/Touch Pass-Thru Control

FIG. 27 illustrates a typical installation for using a touch monitor for mouse and touch pass-thru control.

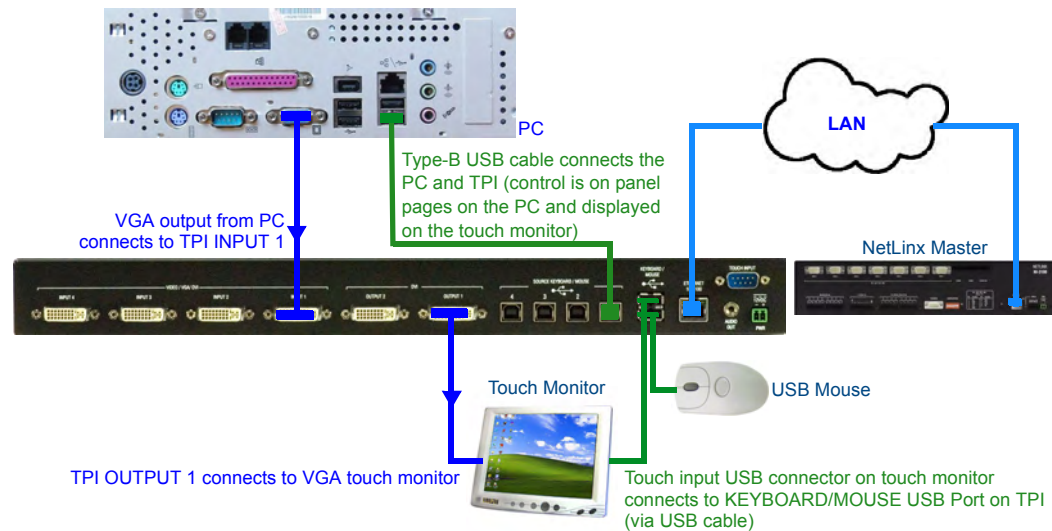


FIG. 27 Example 3: Using a Touch Monitor for Mouse / Touch Pass-Thru Control

Enabling Video Pass-Through Control on a Touch Monitor

To enable a touch response on a panel page being routed through a computer, you must establish pass-thru control. Pass-thru control allows the TPI-PRO to act as a control bridge between a PC and a touch monitor. The touch monitor control option is available only if a *Video Fill* has been applied to the panel page (in the TPDesign4 (Touch Panel Design software application).

With the panel page open in TPDesign4:

1. Select the *States* tab of the Properties Control Window.

2. Open the drop-down menu for the *Video Fill* property, and select the **video slot (1-4)** that will be used on the TPI-PRO.

The example shown in FIG. 27 indicates that only Input 1 is being used - in this case you would select **Video Slot 1** (FIG. 28).

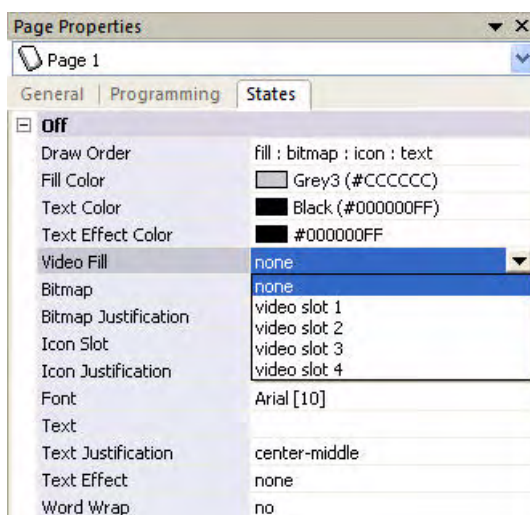


FIG. 28 TPDesign4 - Video Fill drop-down menu

With Video Pass-Thru enabled, the panel's touch coordinates are passed as USB commands from the HD-15 connector on a TPI-PRO to the connected PC. This feature works only if the HD-15 connector is connected directly to the PC via the HD-15 port on the rear of the TPI-PRO.

The touch coordinates are scaled to fit the resulting window. This allows you to "synch" the touch actions from the panel to those on the connected computer.

PC control can be established by routing the Mouse and touch monitor input control through the TPI-PRO. In this scenario, the TPI-PRO is virtually non-existent and is akin to connecting the touch monitor and mouse directly to the rear of the PC. The PC views the TPI-PRO and the HD-15 and USB connectors as an adapter connected to a USB mouse device.

This method allows for both mouse and touch monitor input control of the PC (as seen in FIG. 27).

Follow these steps to configure the TPI-PRO to use a touch monitor for touch and mouse pass-thru control of a PC:

1. Discharge any acquired static electricity by touching a grounded metal object; disconnect the incoming power connector from the rear of the TPI-PRO.
2. Connect a USB mouse to one of the Type-A USB ports on the front or rear of the TPI-PRO.
3. Connect a USB cable from a USB port on the PC to one of the Type-B USB ports on the rear of the TPI-PRO (labelled SOURCE KEYBOARD/MOUSE).
4. Connect a video output on the PC to the VIDEO/VGA Input connector on the rear of the TPI-PRO that corresponds to the Type-B USB port to which the PC is connected. For example:
 - If the PC is connected to Type-B USB port #1, then the video output on the PC must be connected to INPUT 1.
 - If the PC is connected to Type-B USB port #2, then the video output on the PC must be connected to INPUT 2.
 - If the PC is connected to Type-B USB port #3, then the video output on the PC must be connected to INPUT 3 (inputs 3 & 4 available only on the TPI-PRO-4).
 - If the PC is connected to Type-B USB port #4, then the video output on the PC must be connected to INPUT 4 (inputs 3 & 4 available only on the TPI-PRO-4).
5. Connect the touch monitor's touch (keyboard/mouse) connector to the TPI-PRO:

Depending on the compatibilities of the touch monitor, they can connect to either the TOUCH INPUT (DB9) connector or one of the Type-A USB ports (labelled KEYBOARD/MOUSE) on the TPI-PRO.

- For touch monitors with Serial-touch connectors, use a DB9 Serial cable to connect the touch monitor's touch input connector to the TOUCH INPUT (DB9) connector on the TPI-PRO. Refer to the *TOUCH INPUT (DB-9) Port* section on page 15 for a description of the TOUCH INPUT connector pinouts.
 - For touch monitors with USB-touch connectors, use a USB cable to connect the touch monitor's touch input connector to the KEYBOARD/MOUSE (USB Type A) connector on the TPI-PRO.
6. Connect the touch monitor's video output connector to the VGA OUTPUT 1 port on the TPI-PRO.
 7. Apply power to the TPI-PRO.
 8. Code a button on the touch monitor page to enable the pass-thru feature on a selected input card slot. Toggling this coded panel button can enable/disable the pass-thru feature.



You must set the TPI-PRO to match the resolution of the touch monitor's video output resolution, then select a touch driver.

The video should automatically fill-in the available screen area on the touch monitor. If the image generated from the TPI-PRO is slightly "off", adjust the image using the monitor's on-board video adjustment buttons.

9. Setup the TPI-PRO output resolution using the procedures in the *Setting the Output Resolution* section on page 26.



If the TPI-PRO is turned off and then has power re-applied (power cycling), video alignment settings established through the Video and/or RGB pages could be reset unless the adjusted values have been previously saved.

Refer to the Setup - Video Settings Page section on page 56 for more information.

10. Setup the touch drivers for the connected touch monitor by using the procedures in the *Setting the Touch Drivers (Serial Touch Monitors Only)* section on page 27.
11. If necessary, use the panel's video adjust buttons to align the incoming video signal to fit into the available screen area. Initially positioning the incoming video can reduce the necessity of later adjustments (H-position, V-position, H-size, etc.) through the RGB Setup page.

Configuring the TPI-PRO/DVI

Overview

The TPI-PRO/DVI features four configuration pushbuttons (*RESOLUTION*, *TOUCH*, *CALIBRATE* and *SETUP*) on the front panel (FIG. 29). These pushbuttons provide quick access to the main configuration pages for the TPI-PRO/DVI, as described in the following sections:

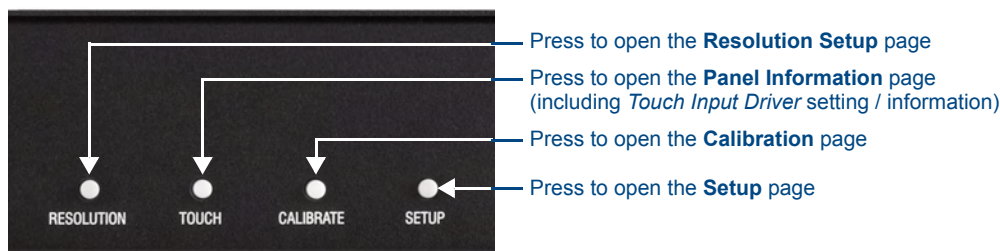


FIG. 29 Configuration Pushbuttons (front panel)

The information contained within this section refers to the procedures necessary to set up the TPI-PRO/DVI resolution, assign a touch driver, and calibrate the driver for use with a connected touch monitor.



In order to configure the TPI-PRO/DVI, you'll need to have a touch device as well as an output display device connected, so that you can view and navigate the pages and make selections and text entries.

See the *Wiring and Device Connections* section on page 15 for details.

The configuration options described in this section are limited to the functions and settings that are typically necessary for the initial setup of the TPI-PRO/DVI.

There are many more configuration options available:

- Refer to the *TPI-PRO/DVI Configuration Pages* section on page 55 for full descriptions of every Configuration page and the options contained in each.
- Refer to the *Protected Setup Page* section on page 71 for descriptions of the options available via the Protected Setup Pages.

Before You Start

The TPI-PRO/DVI has been factory setup with specific touch panel pages. The first splash screen that appears indicates the TPI-PRO/DVI is receiving power, loading firmware, and preparing to display the default touch panel page. When the panel is ready, the AMX Splash Screen is replaced by the Initial Panel Setup page.

- Verify you are using the latest NetLinx Master firmware.
- Verify you are using the latest TPI-PRO/DVI firmware.
- Verify the NetLinx Studio program you are using is version **2.8** or higher.
- Verify the TPDesign4 program you are using is version **2.11** or higher.

Startup Routine and Initial Panel Response

- Discharge any acquired static electricity by touching a grounded metal object.
 - Verify the rear connections are secure and active. Refer to the *Rear Panel Connectors* section on page 18 for detailed cable connector information.
1. Connect the 12VDC Power Supply to the PWR connector on the rear panel. The TPI-PRO/DVI will power ON and initialize the startup routine when the power supply is connected.



NOTE

Once power is applied, use the Power button to toggle the unit off and on.

2. After the startup routine, the connected touch monitor displays one of two possible screens:
 - If the TPI-PRO/DVI's output resolution matches that of the touch monitor, continue by setting the touch drivers associated with the touch monitor.
Refer to the *Setting the Touch Drivers (Serial Touch Monitors Only)* section on page 35.
 - If the TPI-PRO/DVI's output resolution does not match the resolution of the connected touch monitor, you must set the output resolution of the TPI-PRO/DVI to match the touch monitor.
Refer to the following section - *Setting the Output Resolution*.



NOTE

An "OUT OF RANGE" message is often generated by the touch monitor. Some monitors will not display a message, but will appear blank instead.

Setting the Output Resolution

The TPI-PRO/DVI's output resolution must match the output resolution and refresh rate set on the connected monitor.

- The default output resolution is **1280 x 1024 @ 60Hz**.
- The maximum output resolution is **1920 x 1200 @ 60 Hz**.
- Use the RESOLUTION pushbutton to alter the outgoing resolution to match the output pixel resolution and refresh rate set on the connected touch monitor.



NOTE

The TPI-PRO-DVI does not provide Component (YPbPr) or Interlaced outputs. It provides 1920x1080 Progressive RGBHV (the same resolution as 1080p, but it in the RGB color space).

1. Press the RESOLUTION pushbutton to open the *Resolution Setup* page (FIG. 30).
2. Press the RESOLUTION button again to cycle through the available output resolution settings. Every consecutive button push cycles the output resolution to the next highest setting.
 - Double-push the RESOLUTION button to return to the previous setting.
 - For a listing of available output resolutions and refresh rates, see the *Available Pixel Display and Refresh Rates* section on page 163.
3. The message "Please wait, loading new resolution..." indicates that the new resolution setting is being saved. Do not cycle or remove power while the new settings are being saved.
4. Once your resolution is selected, you can use the outer screen area lines on the *Resolution Setup* page to adjust your monitor's visible screen area.
 - This could involve using the monitor's video control to stretch and move the incoming video so that the borders follow the edges of the screen without disappearing.
 - There are normally 60 seconds before the resolution times-out, but you can press the front panel Resolution button again to return to the previous resolution pattern and continue setting up the monitor.

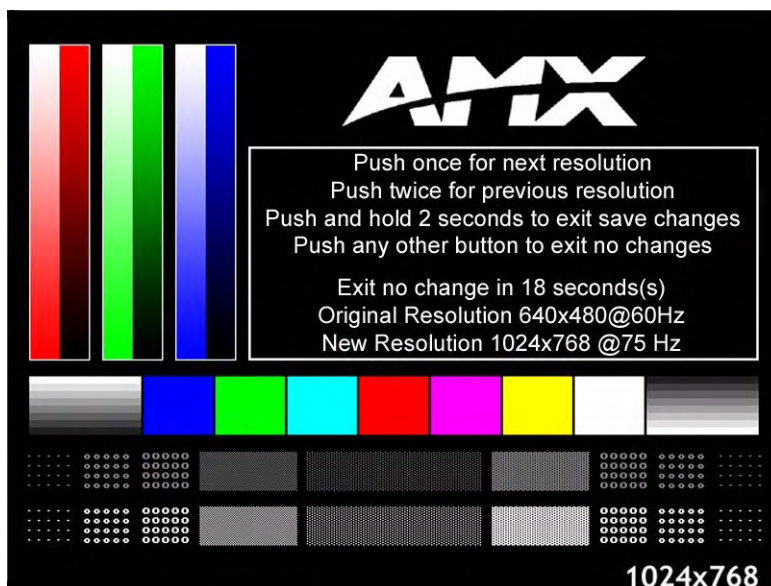


FIG. 30 Resolution Setup page

5. Press and hold the RESOLUTION button to save the resolution setting and exit the *Resolution Setup* page.



When the new output resolution is applied, there may be some shifting of the default Main page, as it was developed for 1280 x 1024.

Setting the Touch Drivers (Serial Touch Monitors Only)

After matching the resolution between the TPI-PRO/DVI and panel/monitor, the next step is to select the necessary touch drivers from the driver set provided by the TPI-PRO/DVI.

- This step only applies to serial touch monitors, as USB monitors are automatically detected.
 - The touch drivers are set when you connect the TPI-PRO/DVI to a touch monitor.
 - The default Touch Input Driver is **EloTouch®**.
 - If you are using a non-touch monitor, set the Touch Input Driver to **NullTouch**.
1. Press the TOUCH pushbutton on the front panel to open the *Panel Information* page (FIG. 31).
 2. Press the front panel TOUCH button to cycle through the list of available Touch Input Drivers.

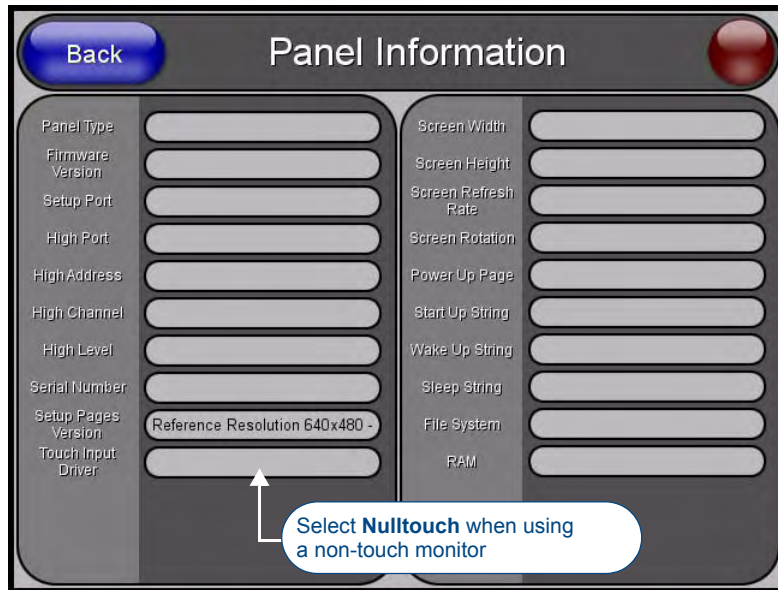


FIG. 31 Panel Information page



Go to <http://www.amx.com/techdocs/TPI-PRO.Supported.Touch.Monitors.xls> to view/download the most recent List of Touch Monitors and USB Touch Drivers Tested with the TPI-Pro (including the most current listing of tested serial touch panel drivers).

Verify that the selected Touch Input Driver matches the connected touch monitor.

Refer to the *Available Pixel Display and Refresh Rates* section on page 163 for a comprehensive list of Touch Monitors that have been tested with the TPI-PRO/DVI.

Calibrating the TPI-PRO/DVI

Use the *Calibration* page to calibrate the touch input on a connected touch panel with the TPI-PRO/DVI. The Calibration page can be accessed via the CALIBRATE pushbutton on the front panel, or via the Calibrate option in the Protected Setup page.

- If no touch device is detected, the *Calibration* page is not available. In this case, the TPI-PRO/DVI will ignore any attempt to open the *Calibration* page.
- If the wrong touch driver is selected prior to the calibration process, press any of the front-panel pushbuttons to exit the *Calibration* page (and select a different touch driver).



If you are using a non-touch enabled monitor, DO NOT PRESS THE CALIBRATE BUTTON. Refer to the Setting the Output Resolution section on page 34 for screen adjustment procedures.

Calibrating the TPI-PRO/DVI Using a USB Input

1. Connect a USB cable from a touch monitor to one of the Type-A USB ports on the front or back of the TPI-PRO/DVI.
2. Press the POWER button on the front panel to reboot the TPI-PRO/DVI and allow the unit to detect the new hardware.
3. Press the CALIBRATE button on the front panel (see FIG. 29 on page 33) to open the *Calibration* page.
4. Press the crosshairs to set the calibration points on the LCD.
5. After the "**Calibration Successful.**" message appears, press anywhere to return to the Setup page. If the calibration fails, attempt to calibrate again. If unsuccessful, call AMX Tech Support.



It is recommended that you calibrate the TPI-PRO/DVI before its initial use, after completing a firmware download, and after switching Touch Input Drivers (and touch devices.)

6. Press the **Protected Setup** button (located on the lower-left of the panel page) to open the *Protected Setup* page (FIG. 32).

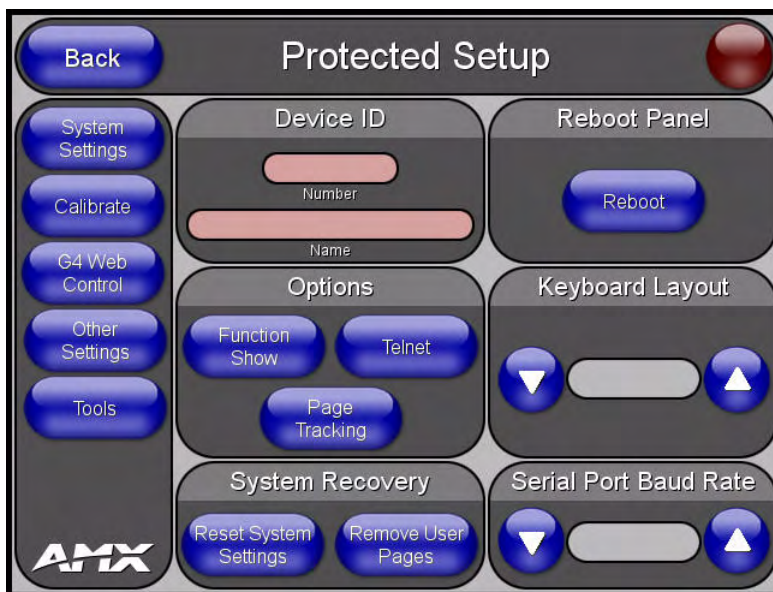


FIG. 32 Protected Setup page

7. Enter **1988** in the *Password* field and press **Done** when finished.
8. Press the on-screen **Reboot** button to cycle power to the TPI-PRO/DVI and incorporate the new settings. The touch monitor goes blank for a few seconds during the reboot process.

Calibrating the TPI-PRO/DVI Using a Serial Touch Monitor

1. Connect a DB9 cable from a touch monitor to the DB-9 touch input connector on the back of the TPI-PRO/DVI.
2. Press the POWER button on the front panel to reboot the TPI-PRO/DVI and allow the unit to detect the new hardware.
3. Press the CALIBRATE button on the front panel. This process opens a calibration page that uses a series of crosshair coordinate intersections to calibrate the touch monitor (using the newly selected touch driver).



If the wrong touch driver is selected prior to the calibration process, press any front-panel button to exit the calibration process and re-select another touch driver. If you are using a non-touch enabled monitor, DO NOT PRESS THE CALIBRATE BUTTON. Refer to the Setting the Output Resolution section on page 34 for adjustment procedures.

4. Press the crosshairs (on the *Calibration* page) to set the calibration points on the monitor.
5. After the "**Calibration Successful.**" message appears, press anywhere to return to the Setup page. If the calibration fails, return to the Protected Setup page and select another touch input driver.



It is recommended that you calibrate the TPI-PRO/DVI before its initial use, after completing a firmware download, and after switching touch input drivers (and touch devices.)

6. Press the **Protected Setup** button (located on the lower-left of the panel page) to open the *Protected Setup* page (see FIG. 32 on page 37).
7. Enter **1988** into the Keypad's password field and press **Done** when finished.
8. Press the on-screen **Reboot** button to cycle power to the TPI-PRO/DVI and incorporate the new settings. The touch monitor goes blank for a few seconds during the reboot process. You can also use a mouse to press the on-screen **Reboot** button.
9. Upon start-up, press anywhere on the screen to return to the Protected Setup page and begin defining the communication properties.

Other Configuration Pages

- For instructions on using the TPI-PRO/DVI Configuration pages to configure communication options for the TPI-PRO/DVI, and establish communication between the TPI-PRO/DVI and the NetLinx Master, refer to the *Configuring Communication Settings* section on page 39.
- For descriptions of all of the TPI-PRO/DVI Configuration pages and their options, refer to the *TPI-PRO/DVI Configuration Pages* section on page 55.

Configuring Communication Settings

Overview

Communication between the TPI-PRO/DVI and the NetLinx Master consists of using an Ethernet connection (DHCP or Static IP).

Configuring TPI-PRO/DVI Communication Settings

Press the **SETUP** pushbutton on the front panel (FIG. 33) to open the *Setup* page.

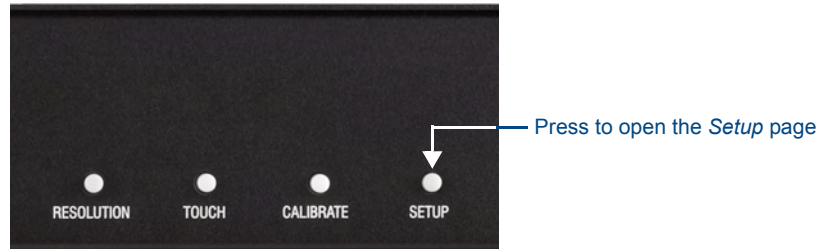


FIG. 33 Setup Pushbutton (front panel)

The options in the *Setup* page allow you to configure communications between the TPI-PRO/DVI and NetLinx Master (FIG. 34).

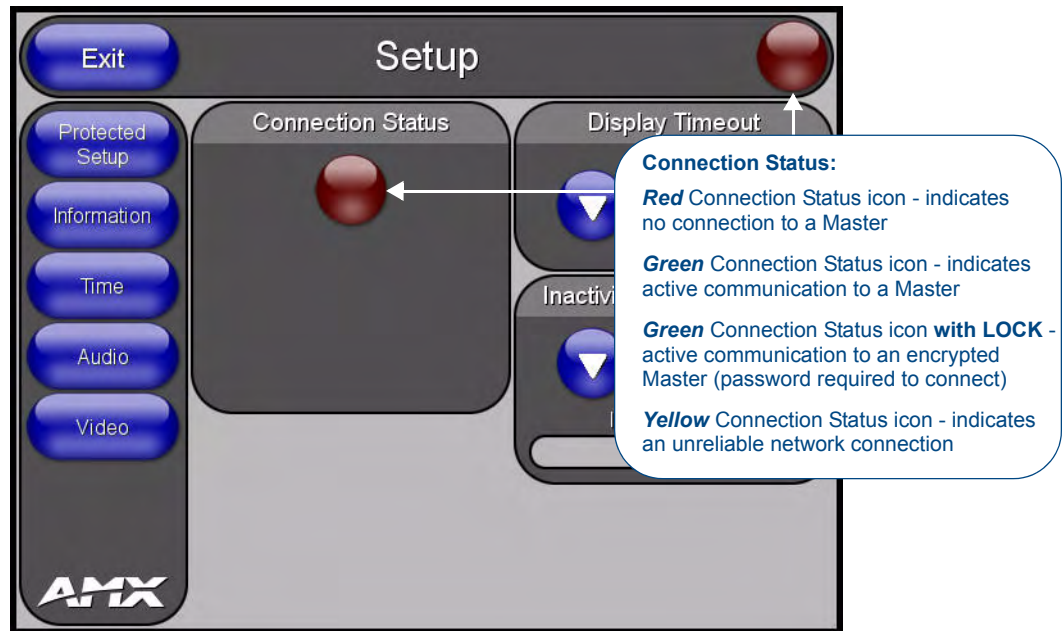


FIG. 34 Setup page



Before commencing, verify you are using the latest NetLinx Master firmware. Verify the NetLinx Studio program being used is version 2.8 or higher.

The basic steps involved with configuring the TPI-PRO/DVI's communications settings include:

1. Assign a Device Number to the TPI-PRO/DVI (see page 40).
2. Set the Serial Port Baud Rate (see page 41).
3. Configure the Master Connection Settings (see page 42).

Assigning a Device Number to the TPI-PRO/DVI

1. Press the front panel SETUP pushbutton to open the *Setup* page (FIG. 35).

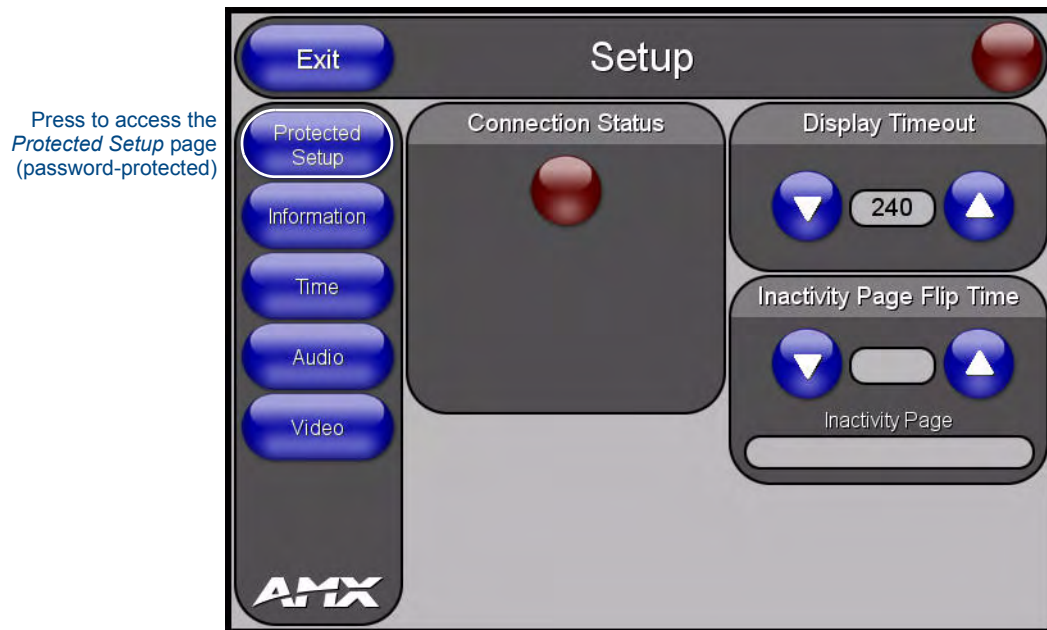


FIG. 35 Setup page - Protected Setup button

2. Press the **Protected Setup** button to open the *Protected Setup* page. This page is password-protected:
 - a. Use the on-screen keypad to enter the default password - **1988**.
 - b. Press **Done** to close the keypad (FIG. 36).



NOTE

*Clearing **Password #5** from the initial Password Setup page, removes the need for you to enter the default password before accessing the Protected Setup page.*

3. Enter a **Device Number** value for the TPI-PRO/DVI (FIG. 36):
 - a. Press the red *Device ID* field to open the keypad.
 - b. Enter a Device Number value for the TPI-PRO/DVI.
 - c. Press **Done** to assign the device number close the keypad.
 - The default value is **10001**
 - Range = **1 - 32000**
 - When using multiple TPI-PRO-DVIs within a NetLinx System, assign unique Device Number values to each TPI-PRO/DVI.

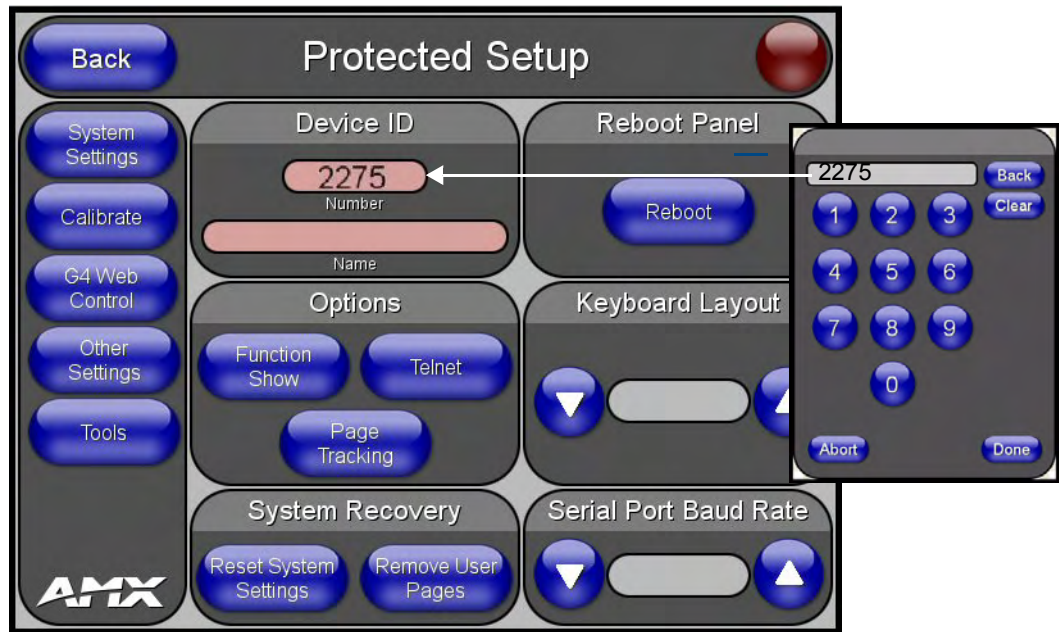


FIG. 36 Protected Setup page with Keypad



Changes made in the Setup pages are not incorporated until the TPI-PRO/DVI is rebooted. See the Rebooting the TPI-PRO/DVI section on page 54 for details.

Setting the Serial Port Baud Rate

In the *Protected Setup* page:

Press the *Serial Port Baud Rate* Up/Down arrow buttons to cycle through the available baud rates (FIG. 37).

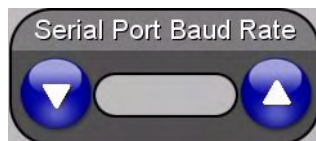


FIG. 37 Protected Setup page - Serial Port Baud Rate

- The default Serial Baud Rate is **38400**.



Changes made in the Setup pages are not incorporated until the TPI-PRO/DVI is rebooted. See the Rebooting the TPI-PRO/DVI section on page 54 for details.

Configuring the Master Connection Settings

It is necessary to point the TPI-PRO/DVI to the specific NetLinx Master with which it should be communicating. "Pointing to a Master" is achieved via options in the *System Settings* page.

The options on the *System Settings* Page allow you to enter the IP Address, System Number, and Username/Password information assigned to the target NetLinx Master.



Until you configure the System Settings parameters, the Connection Status icon remains red, indicating there is no current connection to a Master.

1. Launch the NetLinx Studio application, and establish communication with the target NetLinx Master.
 - NetLinx Studio is available to download from www.amx.com.
 - This program assists in developing a System Number, Master IP/URL, and Master Port number.
 - Refer to the NetLinx Studio online help for details.
2. Obtain the *System Number*, *Master IP/URL*, and *Master Port Number* for the Target NetLinx Master from NetLinx Studio. This information must be specific for the system used with this TPI-PRO/DVI:
 - a. In NetLinx Studio, select **Settings > Master Communication Settings** to open the *Master Communication Settings* dialog (FIG. 38):

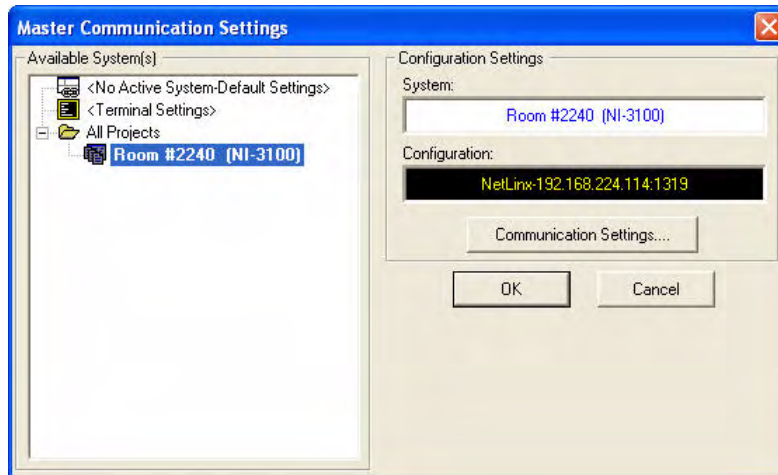


FIG. 38 NetLinx Studio - Master Communication Settings dialog

- b. Select **Communication Settings** to open the *Communication Settings* dialog (FIG. 39):

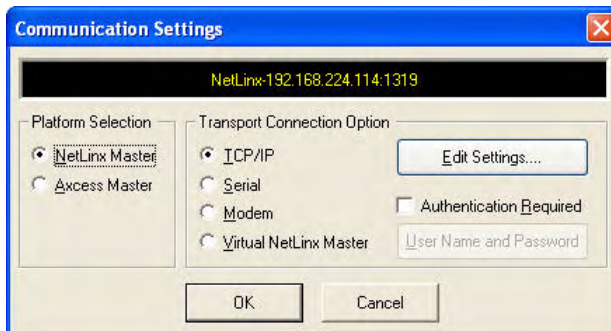


FIG. 39 NetLinx Studio - Communication Settings dialog

- c. Click **Edit Settings** to open the *TCP/IP Settings* dialog (FIG. 40):

The **TCP/IP Settings** dialog box has a blue title bar with a close button. It contains the following fields and controls:

- Current Setting:**
 - TCP/IP Address: 192.168.224.114
 - Description: NetLinx Master
 - Port: 1319
 - ☒ Automatically Ping the Master Controller to Ensure Availability
- Buttons:** New, OK, Cancel.
- List of Addresses:** A table with columns: TCP/IP:URL, Description, Port, Ping Host.

TCP/IP:URL	Description	Port	Ping Host
192.168.1.182		1319	TRUE
192.168.224.114	NetLinx Master	1319	TRUE
192.168.224.127		1319	TRUE
192.168.224.26	My NI-3000	1319	TRUE
192.168.224.79		1319	TRUE
- Buttons for List of Addresses:** Select, Edit, Listen..., Delete, Delete All.

FIG. 40 NetLinx Studio - TCP/IP Settings dialog

- d. Note the *Master IP/URL*, and *Master Port Number* for the connected NetLinx Master.
3. Press the **System Settings** button (on the *Protected Setup* page - see FIG. 36) to open the *System Settings* page (FIG. 41).

The **System Settings** page has a dark grey background with a blue **Back** button and a red circular indicator. It is divided into two main sections:

- IP Settings:**
 - DHCP / Static: ☐
 - IP Address:
 - Subnet Mask:
 - Gateway:
 - Host Name:
 - Primary DNS:
 - Secondary DNS:
 - Domain:
 - Ethernet Mode:
 - MAC Address:
- Master Connection:**
 - Type:
 - Mode:
 - System Number:
 - Master IP / URL:
 - Master Port Number:
 - Username:
 - Password:
 - NDP Name:

FIG. 41 System Settings page

4. Set the *Master Connection* settings to match those of the target NetLinx Master.
5. Press the **Back** button to return to the *Protected Setup* page.
6. **Reboot** the TPI-PRO/DVI (see the *Rebooting the TPI-PRO/DVI* section on page 54).

Configuring TPI-PRO/DVI IP Settings

Configure the IP Settings for the TPI-PRO/DVI via options in the *System Settings* page. IP Settings for the TPI-PRO/DVI can be configured via either DHCP or a reserved Static IP Address, as described in the following sub-sections:

Configuring a DHCP Address

1. Press the **System Settings** button on the *Protected Setup* page (FIG. 36 on page 41) to open the *System Settings* page (FIG. 41 on page 43).
2. In the *IP Settings* section (FIG. 42), press the **DHCP/Static** button until the choice cycles to **DHCP**.

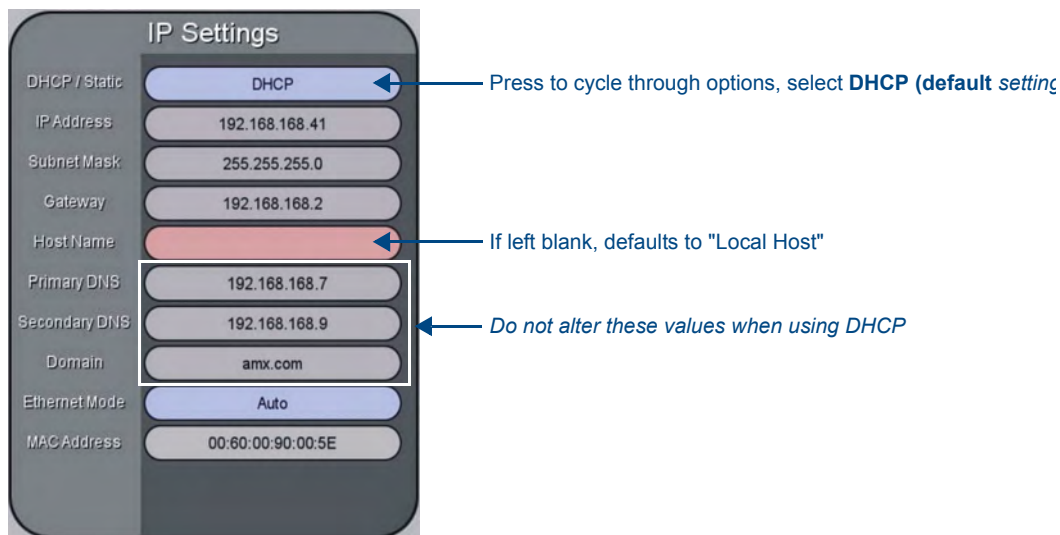


FIG. 42 System Settings page - IP Settings

3. Press **Host Name** button to open an on-screen Keyboard, and enter an alpha-numeric string for the Host Name.
 - If the *Host Name* is left blank, it will automatically resort to the default - "**localhost**".
 - Press **Done** to close the on-screen Keyboard.



Do not alter any of the remaining fields in the IP Settings section. Once the TPI-PRO/DVI is rebooted, these values are obtained by the unit and displayed in the DNS fields.

4. Press the **Back** button to return to the *Protected Setup* page.
5. **Reboot** the TPI-PRO/DVI (see the *Rebooting the TPI-PRO/DVI* section on page 54).

Configuring a Static IP Address



Before you start, obtain a pre-reserved Static IP Address to assign to the TPI-PRO/DVI from your System Administrator.

1. Press the **System Settings** button on the *Protected Setup* page (FIG. 36 on page 41) to open the *System Settings* page (FIG. 41 on page 43).
2. In the *IP Settings* section (FIG. 42), press the **DHCP/Static** button until the choice cycles to **Static**.

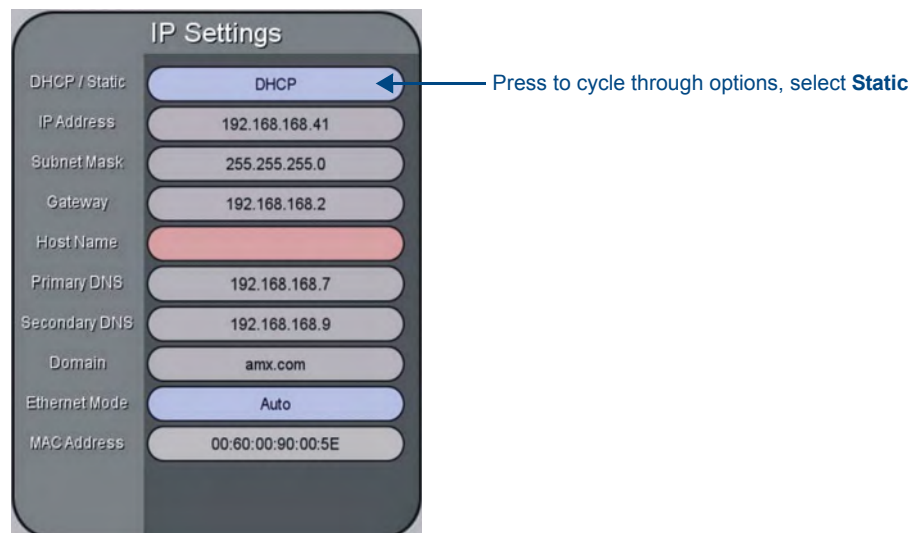


FIG. 43 System Settings page - IP Settings

3. Press the **IP Address** button to open an on-screen keypad, and enter the static IP address provided by your System Administrator. Press **Done** to close the keypad.
4. Repeat this process for **Subnet Mask** and **Gateway**.
5. Press the **Host Name** button to open an on-screen keyboard, and enter an alpha-numeric string for the Host Name (optional).
 - If the *Host Name* is left blank, it will automatically resort to the default - "**localhost**".
 - Press **Done** to close the keyboard.
6. Press the **Primary DNS** button to open an on-screen keypad, and enter the Primary DNS address provided by your System Administrator. Press **Done** to close the keypad.
7. Repeat this process for the **Secondary DNS** field.
8. Press the **Domain** button to open an on-screen keyboard, and enter the unique, resolvable domain address provided by your System Administrator. Press **Done** to close the keyboard.
9. Press the **Back** button to return to the *Protected Setup* page.
10. **Reboot** the TPI-PRO/DVI (see the *Rebooting the TPI-PRO/DVI* section on page 54).

Choosing the Master Connection Mode

Use the options in the **Master Connection** section of the *System Settings* page (FIG. 44) to specify the communication parameters for the target Master.

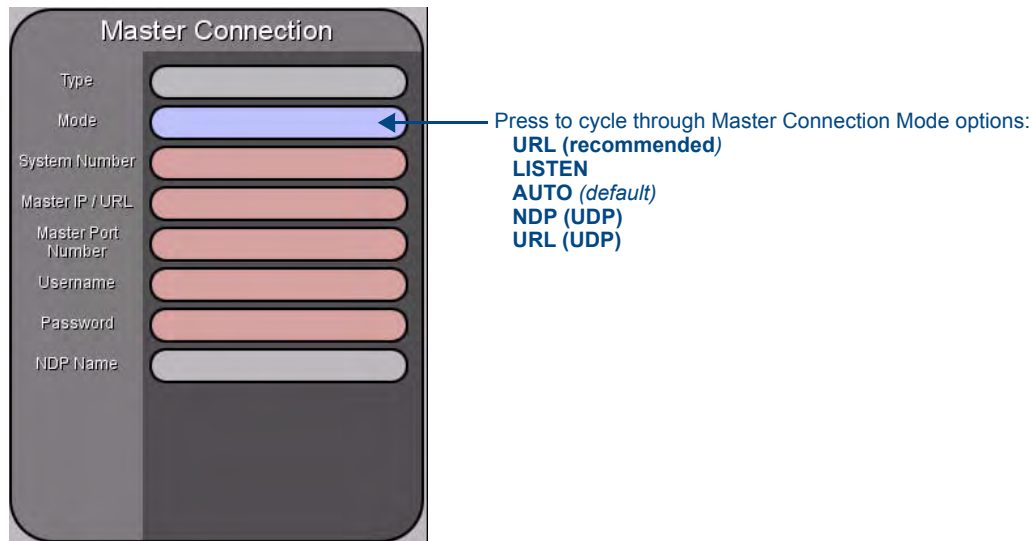


FIG. 44 System Settings page - Master Connection options

Master Connection Mode Options

There are five Ethernet MODE settings available:

- **URL** (*Uniform Resource Locator*) is the address that defines the route to a file on the Web or any other Internet facility. In this system, the TPI-PRO/DVI acts essentially as a "Client" and the Master acts as a "Server".
This is the recommended setting for most situations.
- **LISTEN** sets the TPI-PRO/DVI to "listen" for connections from the Master (using the panel IP from its URL list). In this system, the TPI-PRO/DVI acts as a "Server" (in that Clients attach to it) and the Master acts as a "Client".
- **AUTO (default setting)** is used to instruct the TPI-PRO/DVI to search for a Master that uses the same System Number (assigned within the Master Connection section) and resides on the same Subnet as itself.
AUTO should only be used in systems with a single NetLinx Master on the network.
- **NDP (UDP)** uses multicasting to allow devices to discover each other. The devices must be on a network that allows multicasting and is setup so that if the device and the Master are on separate subnets, the multicasting allows them to discover each other.
- **URL (UDP)** is the address that defines the route to a file on the Web or any other Internet facility. In this system, the panel acts as a "Client" and the Master acts as a Server (in that Clients attach to it). In this case, the Master has its UDP feature enabled.

Configuring the Ethernet Connection on the NetLinx Master

When using Ethernet as the communication method, the NetLinx Master must first be setup with either a DHCP or static IP address obtained from either NetLinx Studio or your System Administrator.



Verify that you are using the latest NetLinx Master firmware (available at www.amx.com).

Before you start, verify that the NetLinx Master is receiving power and is communicating via Ethernet with the PC running NetLinx Studio.

1. Apply power to the TPI-PRO/DVI (see the *12VDC PWR (Power) Connector* section on page 23).
2. Connect the TPI-PRO/DVI to a valid Ethernet Hub on the same LAN as the NetLinx Master and the PC running NetLinx Studio (see the *ETHERNET 10/100 (RJ-45) Port* section on page 21).
 - Verify the green LED on the Ethernet ports on both the NetLinx Master and the TPI-PRO/DVI are illuminated, indicating a proper connection.
 - Verify the yellow LED on the Master's Ethernet port is blinking, indicating active communication.
3. Open the *System Settings* page on the TPI-PRO/DVI:
 - a. Press the **SETUP** pushbutton on the front panel to access the *Setup* page.
 - b. Press the **Protected Setup** button to access the *Protected Setup* page, using the on-screen keypad to enter the password (default = **1988**).
 - c. Press the **System Settings** button to open the *System Settings* page (FIG. 45).

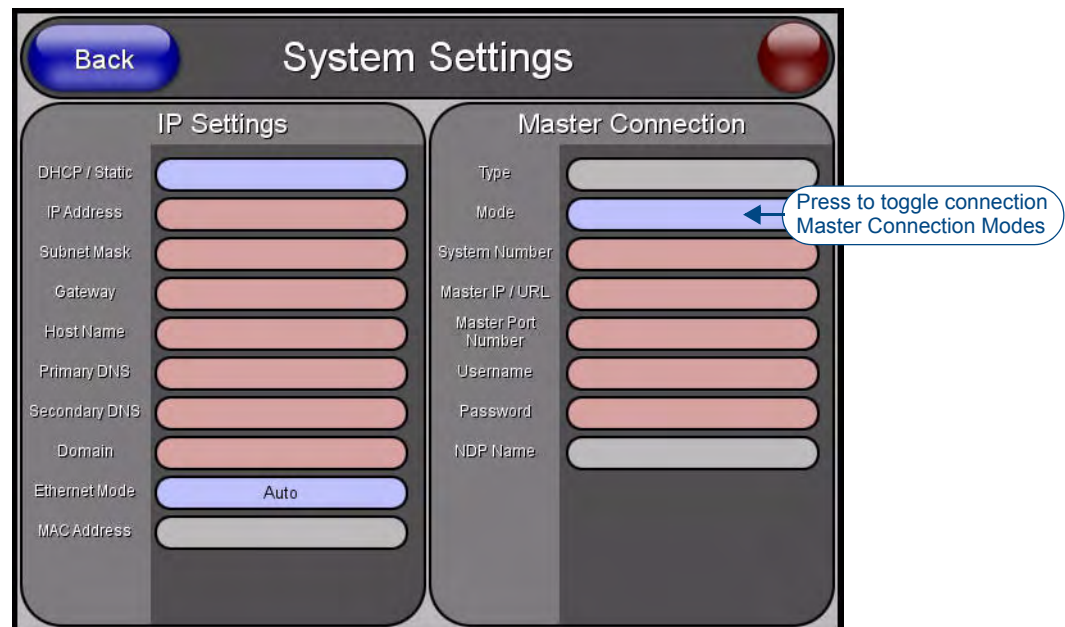


FIG. 45 System Settings page

NetLinx Master IP Address - URL Mode

In *URL* mode, enter the System Number and the IP/URL of the NetLinx Master in the *System Settings* page.

- Use **0** (zero) for if the System Number is unknown (*default setting*).
 - The default Master Port Number is **1319**. **Do not alter the Master Port Number value.**
1. Press the **Mode** button until the option cycles to **URL**.
 - By selecting **URL**, the System Number field becomes read-only, because the TPI-PRO/DVI retrieves this value from the Master.

- If the TPI-PRO/DVI does not appear in the Online Tree in NetLinx Studio, make sure that the NetLinx Master System Number, which can be derived from NetLinx Studio's *Device Addressing* dialog (FIG. 46), is assigned correctly.

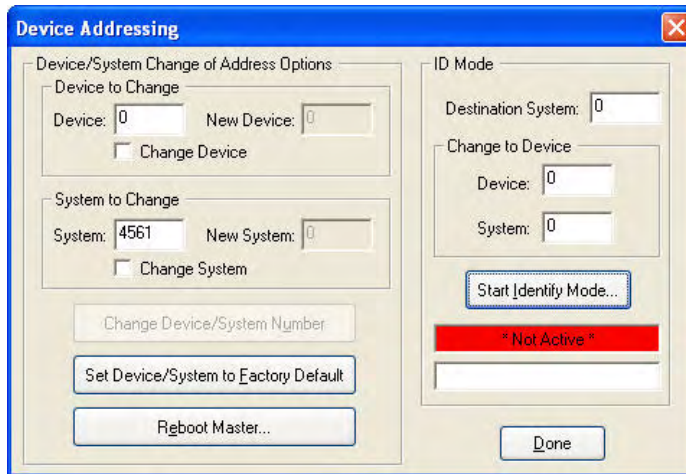


FIG. 46 NetLinx Studio - Device Addressing dialog

2. Press the **Master IP/URL** button to open the on-screen keyboard, and enter the Master's IP address or URL. This information can be obtained from the *Networking Addresses* dialog in NetLinx Studio:
 - a. In NetLinx Studio, select **Diagnostics > Network Addresses** to open the *Network Addresses* dialog (FIG. 47).

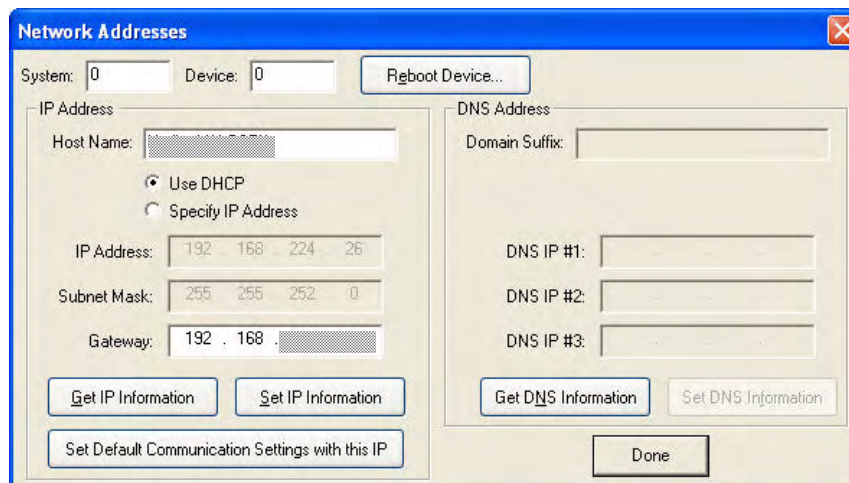


FIG. 47 NetLinx Studio - Network Addresses dialog

- b. Click **Get IP Information** to retrieve IP information from the NetLinx Master.
3. Click **Done** to accept the new value and return to the *System Configuration* page.
 4. Press the **Back** button to open the *Protected Setup* page.



If the Master has been secured, a Username and Password are required.

5. **Reboot** the TPI-PRO/DVI (see the *Rebooting the TPI-PRO/DVI* section on page 54).

NetLinX Master IP Address - Listen Mode

When in *Listen* mode, the TPI-PRO/DVI will listen for connections from the Master (using the TPI-PRO/DVI's IP from its URL list).

To place the TPI-PRO/DVI in Listen mode, you must add the TPI-PRO/DVI's IP address into the Master's URL List (using NetLinX Studio):

1. Obtain either a Static IP for the TPI-PRO/DVI from your System Administrator, or obtain a DHCP Address from the *System Settings* page (*IP Settings* section).
See the *Configuring TPI-PRO/DVI IP Settings* section on page 44 for details.
2. Press the **Reboot** button on the *Protected Setup* page to save changes and restart the TPI-PRO/DVI.
3. After power-up, press the SETUP pushbutton (front panel) to access the *Setup* page (see FIG. 34 on page 39).
4. Navigate to the *System Settings* page (**Setup > Protected Setup > System Settings**), and note the newly obtained *IP Address* information in the *IP Settings* section.



The TPI-PRO/DVI's IP Address information will be entered into the URL List for the NetLinX Master in a later step.

5. Press **Mode** until the option cycles to **Listen**.
6. Press the **Back** button to open the *Protected Setup* page.



If the Master has been secured, a Username and Password are required.

7. In NetLinX Studio, select **Diagnostics > URL Listing** to open the *URL Listing* dialog (FIG. 48).

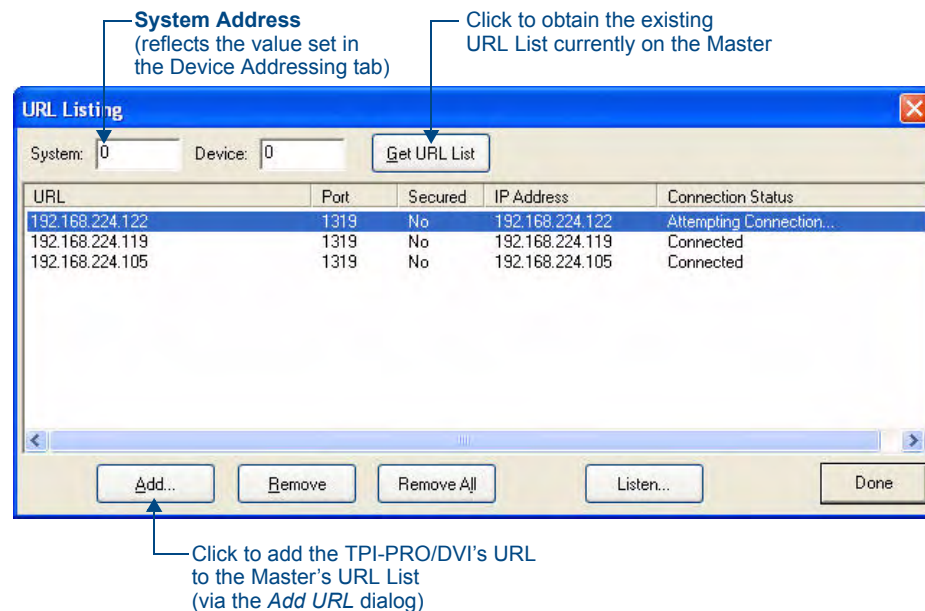


FIG. 48 NetLinX Studio - URL Listing dialog

8. Enter the **System** and **Device** number for the NetLinX Master associated with your TPI-PRO/DVI, as indicated in NetLinX Studio's *Device Addressing* dialog (FIG. 46 on page 48).
9. In the *URL Listing* dialog, click **Add** to access the *Add URL* dialog, and enter the TPI-PRO/DVI's IP address in the **URL** field (FIG. 49).

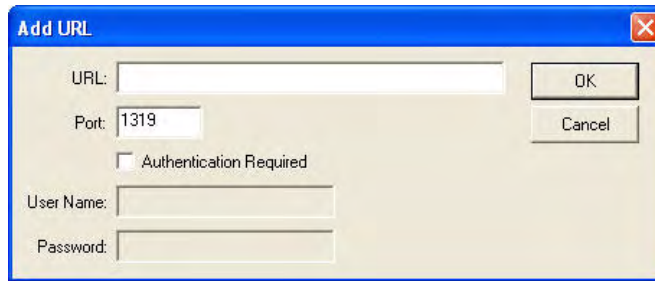


FIG. 49 NetLinx Studio - Add URL dialog

- 10.** Click **OK** to add this IP Address to the Master's URL List and close the *Add URL* dialog.
- 11.** In the *URL Listing* dialog, click **Done** to save changes and close the dialog.
- 12.** **Reboot** the TPI-PRO/DVI (see the *Rebooting the TPI-PRO/DVI* section on page 54).

NetLinx Master Ethernet IP Address - Auto Mode

Auto mode instructs the TPI-PRO/DVI to search for a Master with the same System Number and residing on the same Subnet as the TPI-PRO/DVI.

To place the TPI-PRO/DVI in *Auto* mode, you must enter the System Number of the NetLinx Master.



NOTE

The NetLinx Master and the TPI-PRO/DVI must share the same Subnet.

- 1.** In the *System Settings* page, press **Mode** until the option cycles to **Auto**.
- 2.** Press the **System Number** to open the on-screen keypad, and enter the System Number of the NetLinx Master.
 - The Master's System Number can be derived from NetLinx Studio's *Device Addressing* dialog (see FIG. 46 on page 48).
 - Do not alter the IP settings on the *System Settings* page for *AUTO* connection mode.
- 3.** Press the **Back** button to open the *Protected Setup* page.



NOTE

If the Master has been secured, a Username and Password are required.

- 4.** **Reboot** the TPI-PRO/DVI (see the *Rebooting the TPI-PRO/DVI* section on page 54).
- 5.** Press the **SETUP** pushbutton (on the front panel) to open the *Setup* page and confirm there is an active connection.

NetLinx Master Ethernet IP Address - NDP (UDP) Mode

In *NDP (UDP)* mode, a connection is established via the NetLinx Master's on-board WebConsole to bind the TPI-PRO/DVI to the Master.



NOTE

Refer to the NI Series NetLinx Integrated Controllers - WebConsole & Programming Guide (available at www.amx.com) for a full description of the on-board WebConsole.

- 1.** In the *System Settings* page, press **Mode** until the option cycles to **NDP (UDP)**.
- 2.** **Reboot** the TPI-PRO/DVI (see the *Rebooting the TPI-PRO/DVI* section on page 54).
- 3.** Open the Master's online WebConsole:
 - a.** Open a web browser on a PC that has access to the Master to which you want to connect
 - b.** Enter the IP address of the Master in the browser's Address bar.

- c. Press **Enter** to connect to the Master and open the WebConsole. The initial view is the *WebControl* page, as shown in FIG. 50.

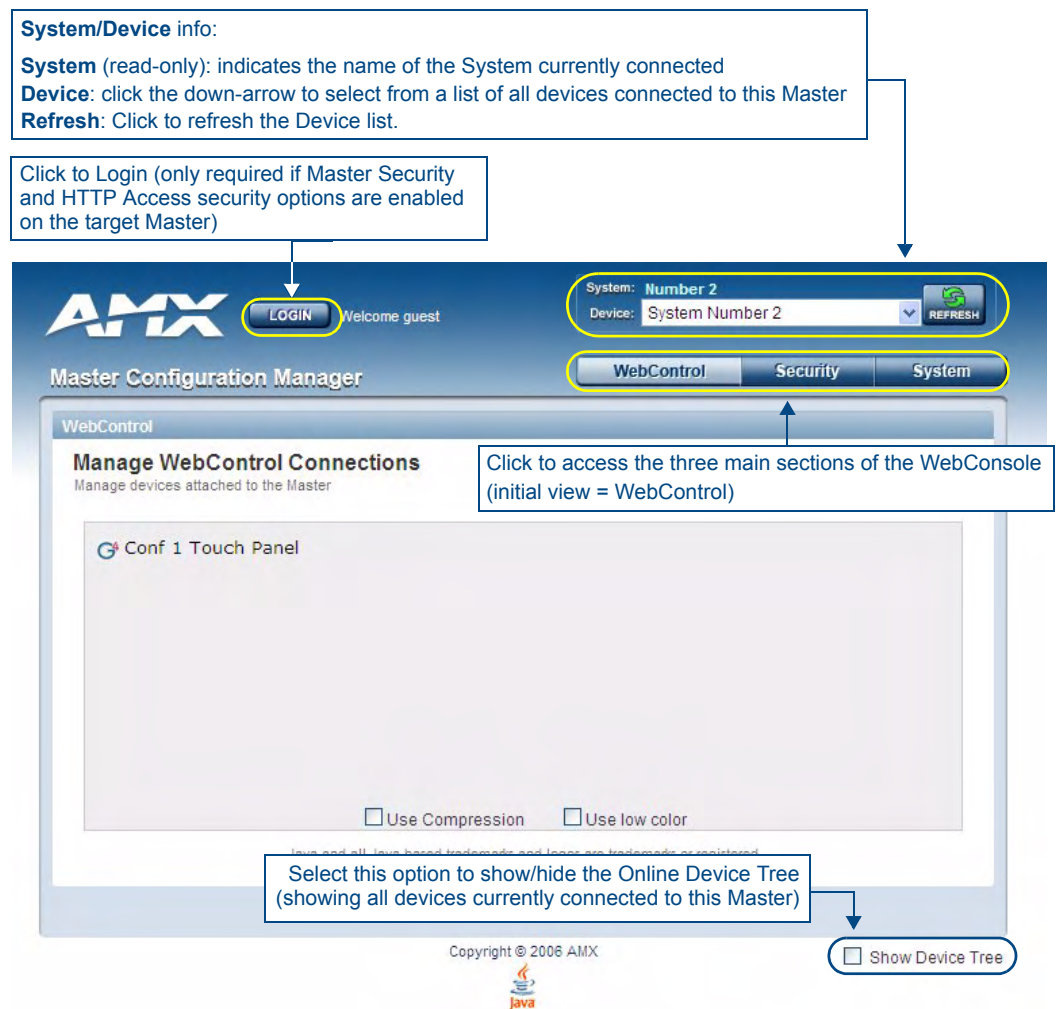


FIG. 50 Master Configuration Manager - WebControl Page (initial view)

4. Click **System** at the top of the page. The default view for the System option is the *Manage System* tab (FIG. 51).

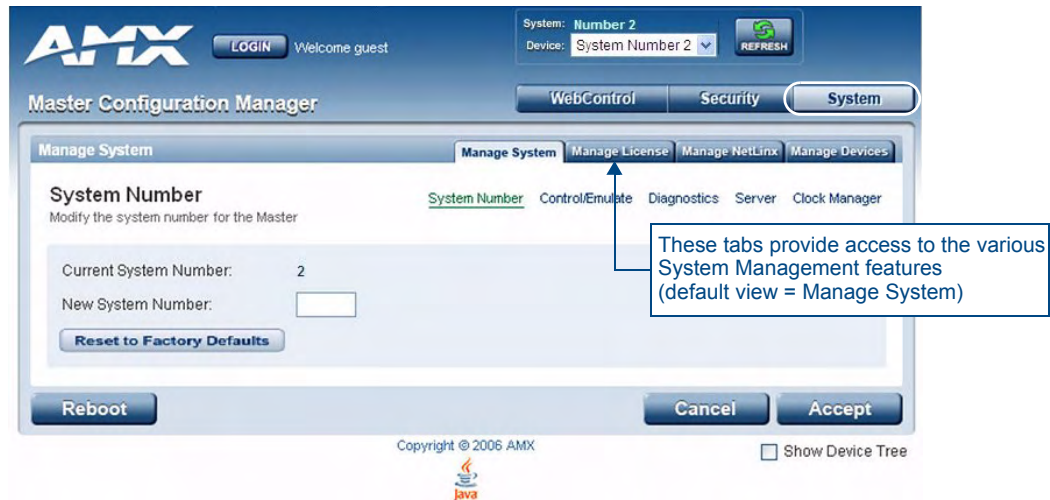


FIG. 51 Manage System (System Number)

5. Open the **Manage NetLink** tab. This tab displays a list of NetLink devices connected to the Master, and indicates device status for each (FIG. 52).

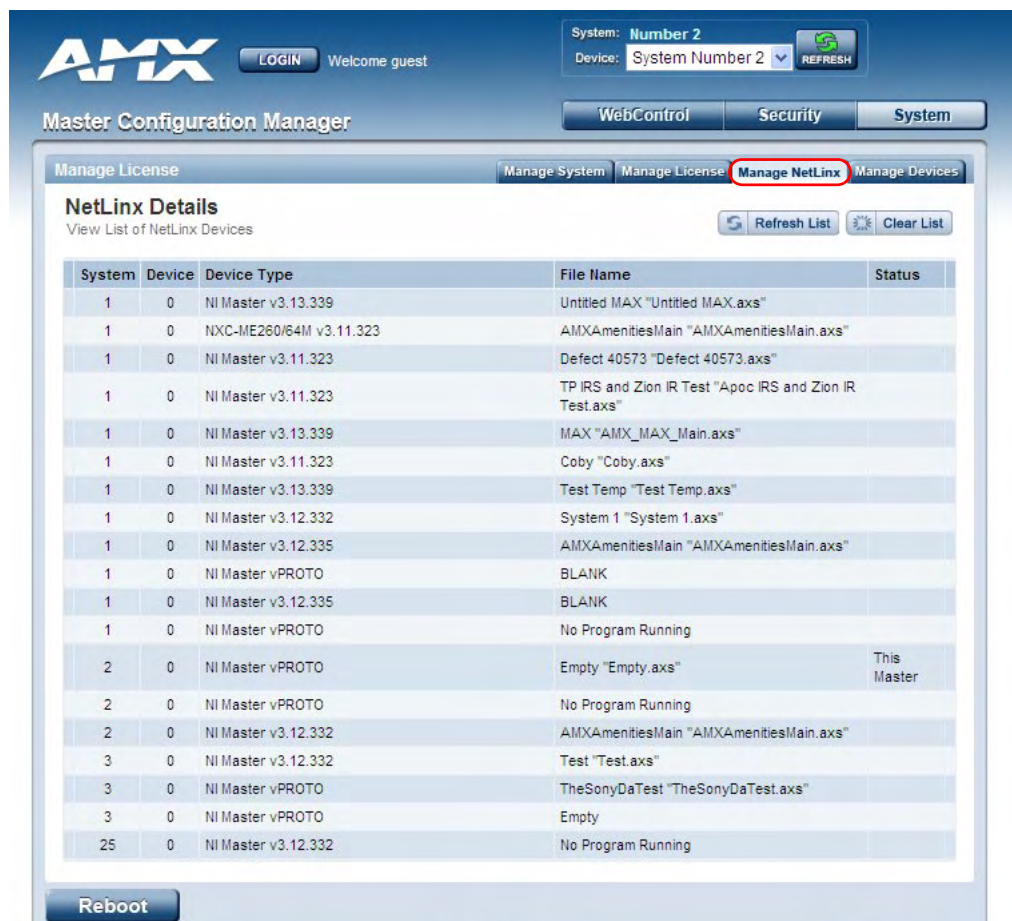


FIG. 52 System - Manage NetLink tab

The table on this page consists of five columns:

NetLinx Device Details	
Column	Description
System:	Displays the System value being used by the listed NetLinx Master.
Device:	Displays the assigned device value of the listed unit. This Device entry applies to both the Master and those NDP-capable devices currently connected to that Master.
Device Type:	Displays a description of the target Master or connected device, and its current firmware version. Example: <i>NI Master v3.01.323</i> .
File Name:	Displays the program name and/or file resident on the device.
Status:	<p>Indicates the Master or device state:</p> <ul style="list-style-type: none"> • This Master: Indicates its the target Master currently being used and being browsed to. Its this Master's web pages which are currently being viewed. • Orphan: Indicates that the device is currently not yet "bound" or assigned to communicate with a particular Master. This state shows an adjacent Bind button which is used to bind the device to the Master whose web pages are currently being viewed. • Searching: Indicates that the device is trying to establish communication with it's associated Master. • Bound: Indicates that the device has established communication with it's associated Master. This state shows an adjacent Unbind button which is used to release/disassociate the device from communicating with its current Master. • Lost: Indicates that the device has tried to establish communication with it's associated or "bound" Master, but was after a period of time, unable to establish communication.

6. Locate the TPI-PRO/DVI you want to connect to the Master, and click **Bind** (the *Bind* button is located on the same line as the TPI-PRO/DVI).
 - The Master refreshes and shows that the TPI-PRO/DVI is bound to it.
 - The TPI-PRO/DVI remains bound to the Master and will connect to it whenever you reboot the TPI-PRO/DVI.



NOTE

If the TPI-PRO/DVI does not appear within the OnLine Tree tab of the Workspace window of NetLinx Studio, check to make sure that the NetLinx Master System Number (from the Device Addressing dialog box) is correctly assigned.

NetLinx Master Ethernet IP Address - URL (UDP) Mode

In this mode, enter the System Number (zero for an unknown System Number) and the IP/URL of the Master (Master Port Number is defaulted to **1319**).

1. Press the **Mode** field until the option cycles to URL (UDP). By selecting **URL (UDP)**, the System Number field becomes read-only (grey) because the panel pulls this value directly from the communicating target Master.
2. Press the *Master IP/URL* field to open an on-screen keyboard, and enter the Master IP Address (obtained from the Diagnostics - Networking Address dialog in the NetLinx Studio application).
3. Click **Done** to accept the new value and return to the System Configuration page.
4. Do not alter the *Master Port Number* value. (This is the default value used by NetLinx).
5. Enter a username and password into their respective fields if the target Master has been previously secured.
6. Press the **Back** button to open the *Protected Setup* page.
7. Press the on-screen **Reboot** button to both save any changes and restart the TPI-PRO/DVI.

Rebooting the TPI-PRO/DVI

Changes made in the Setup pages are not incorporated until the TPI-PRO/DVI is rebooted.

Press the **Reboot** button on the *Protected Setup* page to reboot the TPI-PRO/DVI and incorporate all changes (FIG. 53).

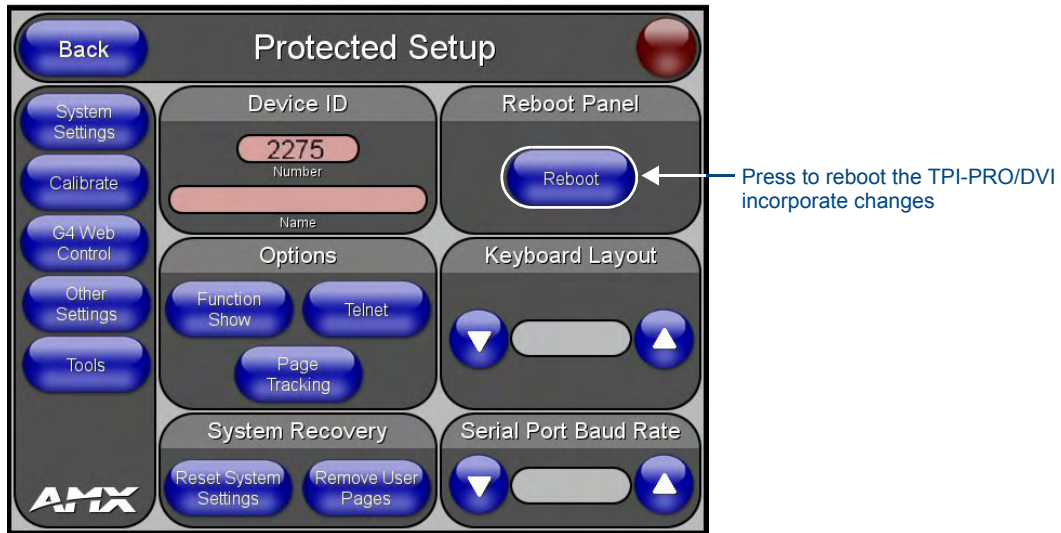


FIG. 53 Protected Setup page - Reboot Panel button

TPI-PRO/DVI Configuration Pages

Overview

This section describes each of the configuration pages available on the TPI-PRO/DVI, and the options contained in each.

The main pages are accessed via the four pushbuttons on the front panel (FIG. 54), while several secondary setup pages are accessed via buttons contained in the Main Pages.

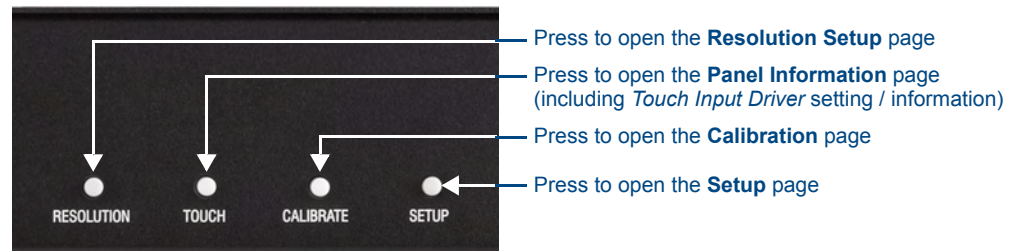


FIG. 54 Configuration Pushbuttons (front panel)



In order to configure the TPI-PRO/DVI, you'll need to have a touch device as well as an output display device connected, so that you can view and navigate the pages and make selections and text entries.

*See the **Wiring and Device Connections** section on page 15 for details.*

Resolution Setup Page

Press the **RESOLUTION** pushbutton on the front panel (see FIG. 54) to access the *Resolution Setup Page* (FIG. 55).

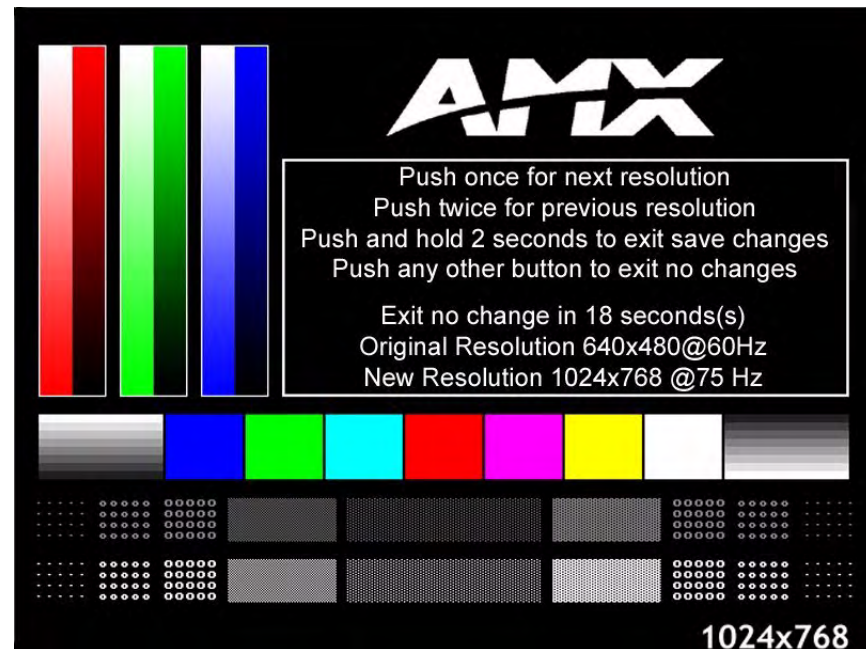


FIG. 55 Resolution Setup page

The options on this page allow you to adjust the TPI-PRO/DVI's output resolution/refresh rate setting.

The TPI-PRO/DVI's output resolution must match the output resolution and refresh rate set on the connected touch monitor.

- The default TPI-PRO/DVI output resolution is **1280 x 1024 @ 60Hz**.
- The maximum output resolution setting is **1920x1200 @ 60Hz**.
- For a listing of available output resolutions and refresh rates, see the *Available Pixel Display and Refresh Rates* section on page 163.

Refer to the *Setting the Output Resolution* section on page 34 for instructions on adjusting the TPI-PRO/DVI's output resolution.

Panel Information Page

Press the **TOUCH** pushbutton on the front panel (see FIG. 54 on page 55) to access the *Panel Information Page* (FIG. 56).

FIG. 56 Panel Information Page

The Panel Information Page displays various properties of the TPI-PRO/DVI (*read-only*):

Panel Information Page	
Back:	Saves the changes and returns to the previously active touch panel page.
Connection Status icon:	<p>This visual display of the connection status allows the user to have a current update of the TPI-PRO/DVI's connection status regardless of what page is currently active.</p> <ul style="list-style-type: none"> • A Lock only appears on the icon if the TPI-PRO/DVI has established a connection with a currently secured target Master (<i>requiring a username and password</i>).
• Panel Type:	Displays the type of G4 device (TPI-PRO/DVI) being used.
• Firmware Version:	Displays the version of G4 firmware currently loaded.
• Setup Port:	Displays the TPI-PRO/DVI's Setup Port value.
• High Port:	Displays the TPI-PRO/DVI's high port (port count) value.
• High Address:	Displays the TPI-PRO/DVI's high address (address count) value.
• High Channel:	Displays the TPI-PRO/DVI's high channel (channel count) value.
• High Level:	Displays the TPI-PRO/DVI's high level (level count) value.

Panel Information Page (Cont.)	
• Serial Number:	Displays the TPI-PRO/DVI's serial number.
• Setup Pages Version:	Displays the type and version of the Setup pages.
• Touch Input Driver:	Displays the driver used for the touch monitor.
• Screen Width:	Displays the pixel width sent by the TPI-PRO/DVI to the display. • The maximum available screen width on a TPI-PRO/DVI is 1920 pixels.
• Screen Height:	Displays the pixel height sent by the TPI-PRO/DVI to the display. • The maximum available screen height on a TPI-PRO/DVI is 1200 pixels.
• Screen Refresh Rate:	Displays the refresh rate sent to the display.
• Screen Rotation:	Displays the degree of rotation applied to the on-screen image.
• Power Up Page:	Displays the touch panel page set to display when the TPI-PRO/DVI is powered-up. • This information comes from the TPD4 project file. • Most projects begin with a Main page.
• Start Up String:	Displays the string used for start-up.
• Wake Up String:	Displays the string used for an activation after a timeout.
• Sleep String:	Displays the string used during the sleep mode.
• File System:	Displays the amount of internal disk space available on the TPI-PRO/DVI.
• RAM:	Displays the amount of RAM available on the TPI-PRO/DVI.

Calibrate Page

Press the **CALIBRATE** pushbutton on the front panel (see FIG. 54 on page 55) to access the *Calibrate Page* (FIG. 57).

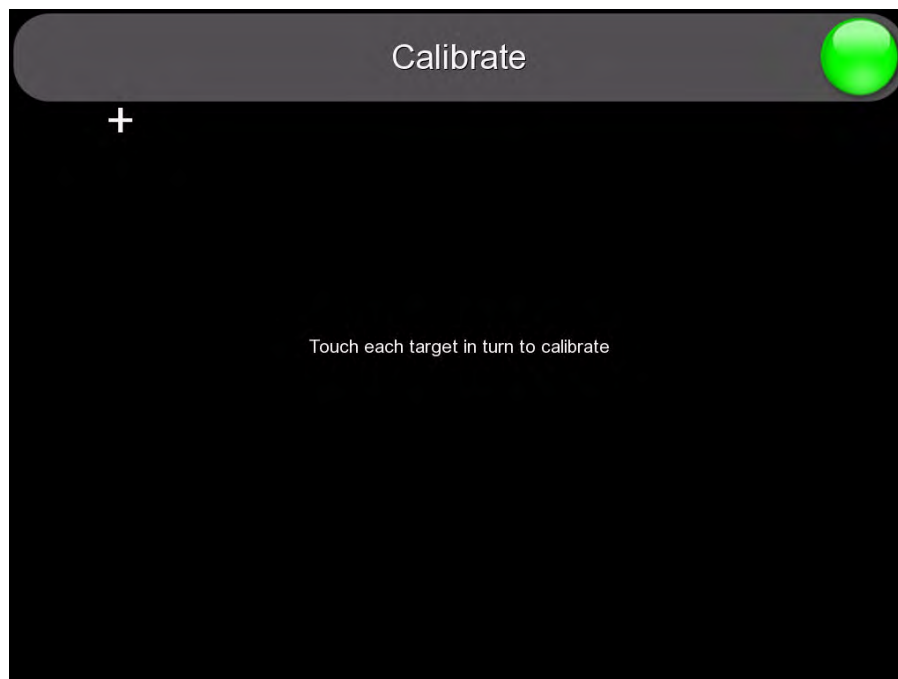


FIG. 57 Calibrate Page

The options on this page allow you to calibrate the input touch device (touch monitor) using the selected touch driver.



Alternatively, the Calibrate Page can be accessed via options on the Protected Setup Page (see Protected Setup Page section on page 71).

- Press the crosshairs to calibrate the panel.
- When the calibration is complete, the Calibrate Page closes (returning to the last open Configuration page).

Refer to the *Calibrating the TPI-PRO/DVI* section on page 36 for details.

Setup Page

Press the **SETUP** pushbutton on the front panel (see FIG. 54 on page 55) to access the Setup Page (FIG. 58). The options on the *Setup* page center around the basic properties used by the touch device connected to the TPI-PRO/DVI.

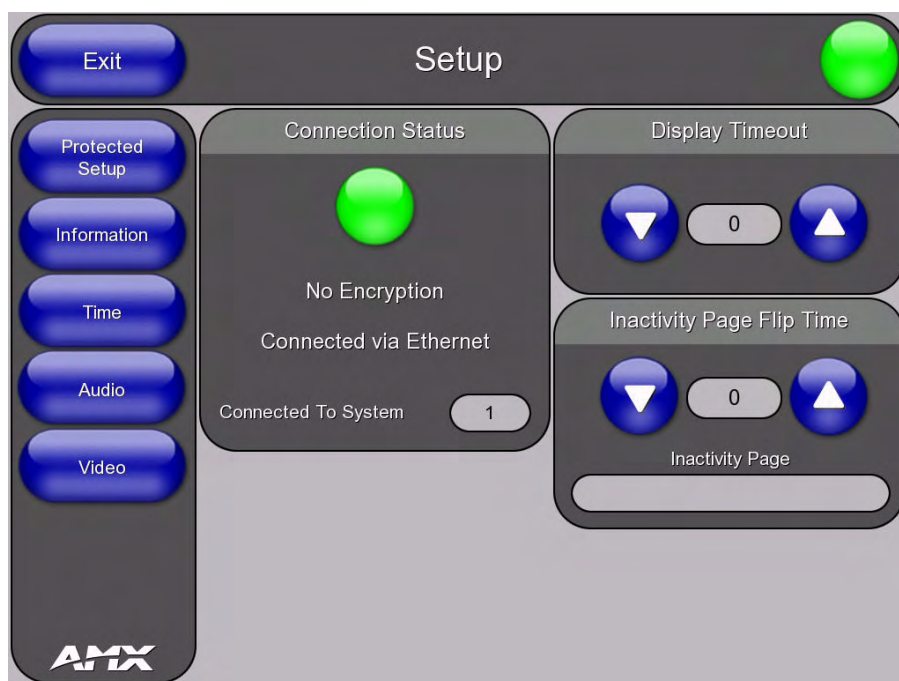


FIG. 58 Setup Page

Setup Page	
• Exit:	Saves any setting changes made on the page to disk, and returns you to the Main touch panel page.
• Connection Status icon:	<p>The icon in the upper-right hand corner provides a visual indication of the connection status, displayed on every page for convenience.</p> <ul style="list-style-type: none"> • The Connection Status icon reflects the connection icon in the Connection Status area of this page (see below). • A Lock appears on the icon if the TPI-PRO/DVI has established a connection with a secured NetLinx Master (requiring a username and password).

Setup Page (Cont.)	
<ul style="list-style-type: none"> • Setup Page Navigation Buttons: 	<p>The navigation buttons displayed along the left of the Setup Page provide access to several additional configuration pages:</p> <ul style="list-style-type: none"> • Protected Setup - Press to access the main <i>Protected Setup Page</i>. Refer to the <i>Protected Setup Page</i> section on page 71. • Information - Press to access the <i>Project Information Page</i>. This page displays various properties of the TPDesign4 project file currently loaded on the TPI-PRO/DVI (read-only). Refer to the <i>Setup - Project Information Page</i> section on page 61. • Time - Press to access the <i>Time & Date Settings Page</i>. The options on this page allow you to alter the time and date settings on the TPI-PRO/DVI. Refer to the <i>Setup - Time & Date Settings Page</i> section on page 62.
<ul style="list-style-type: none"> • Setup Page Navigation Buttons (Cont.): 	<ul style="list-style-type: none"> • Audio - Press to access the <i>Audio Settings Page</i>. The options on this page allow you to adjust various audio parameters. Refer to the <i>Setup - Audio Settings Page</i> section on page 63. • Video - Press to access the <i>Video Settings Page</i>. The options on this page allow you to set the properties for incoming video signals. Refer to the <i>Setup - Video Settings Page</i> section on page 64.
<ul style="list-style-type: none"> • Connection Status: 	<p>This read-only area indicates the TPI-PRO/DVI's connection status, the encryption status of the NetLinx Master, the connection type, and the System to which this TPI-PRO/DVI is connected.</p>
<ul style="list-style-type: none"> • Display Timeout: 	<p>Sets the length of time (in minutes) the TPI-PRO/DVI can remain idle before activating sleep mode. When the device goes into sleep mode, the LCD (on connected touch panels) is powered-down.</p> <p>Press the UP/DN buttons to increase/decrease the timeout value.</p> <ul style="list-style-type: none"> • Range = 0 - 240 minutes (0 = Display Timeout disabled) • Default = 5 minutes <p>Note: You must exit the setup page in order for the "Display Timeout" & "Inactivity Page Flip Time" settings to be saved to memory.</p>
<ul style="list-style-type: none"> • Inactivity Page Flip Timeout: 	<p>Sets the length of time (in minutes) of inactivity allowed before the TPI-PRO/DVI will automatically flip to a pre-selected panel page (on connected touch panels). In this case, the LCD does not power-down.</p> <p>Press the UP/DN buttons to increase/decrease the timeout value.</p> <ul style="list-style-type: none"> • Range = 0 - 240 minutes (0 = Inactivity Page Flip Timeout disabled) • Default = 5 minutes • The touch panel page used for the Inactivity page flip is shown within a small Inactivity Page field. <p>Note: You must exit the setup page in order for the "Display Timeout" & "Inactivity Page Flip Time" settings to be saved to memory.</p>

Setup - Protected Setup Page

Press the **Protected Setup** button on the *Setup Page* (see FIG. 58 on page 58) to access the main *Protected Setup Page* (FIG. 59).

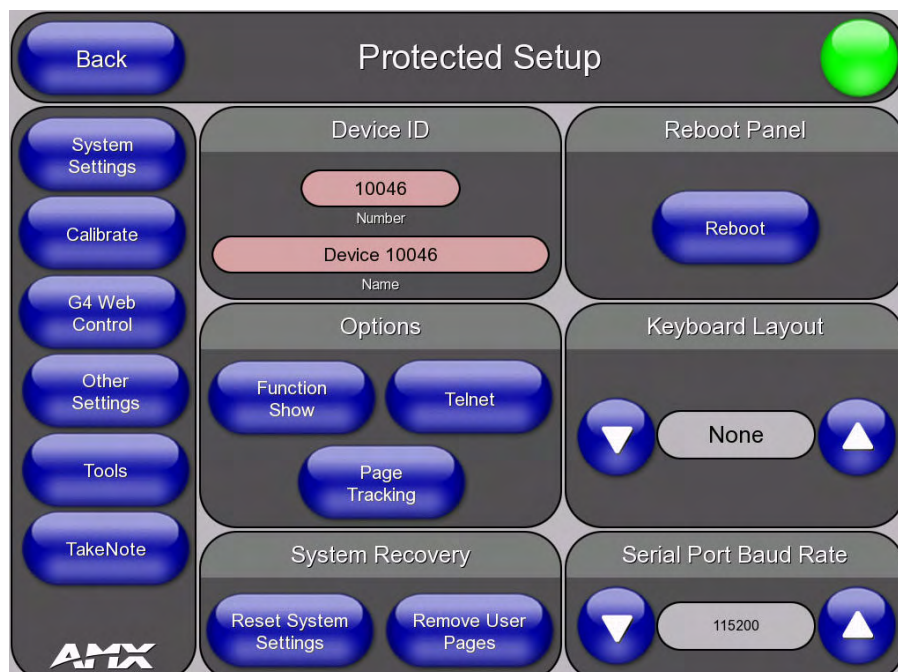


FIG. 59 Setup - Protected Setup Page

Refer to the *Protected Setup Page* section on page 71.

Setup - Project Information Page

Press the **Information** button on the *Setup Page* (see FIG. 58 on page 58) to access the *Project Information Page* (FIG. 60).

Project Information	
File Name	Bishop test 1024x768.TP4
Designer ID	
File Revision	
Dealer ID	
Job Name	Bishop test 1024x768
Sales Order	
Purchase Order	
Build Number	101
Creation Date	Fri Oct 19 09:56:30 2007
Revision Date	Fri Oct 19 09:56:30 2007
Last Save Date	Wed Feb 25 12:05:13 2009
Blink Rate	5
Job Comments	

FIG. 60 Setup - Project Information Page

The *Project Information* page displays various properties of the TPDesign4 project file currently loaded on the TPI-PRO/DVI (read-only). The items on this page reflect the items on the *Project Information* tab of the *Project Properties* dialog in TPDesign4:

Setup - Project Information Page	
• Back:	Saves the changes and returns to the previously active touch panel page. Note: This option is included on all Setup pages for convenience.
• Connection Status icon:	This visual display of the connection status allows the user to have a current update of the TPI-PRO/DVI's connection status regardless of what page is currently active. • A Lock only appears on the icon if the TPI-PRO/DVI has established a connection with a currently secured target Master (requiring a username and password). Note: This option is included on all Setup pages for convenience.
• File Name:	Displays the name of the TPDesign4 project file downloaded to the TPI-PRO/DVI.
• Designer ID:	Displays the designer information.
• File Revision:	Displays the revision number of the file.
• Dealer ID:	Displays the dealer ID number (unique to every dealer and entered in TPD4).
• Job Name:	Displays the job name.
• Sales Order:	Displays the sales order information.
• Purchase Order:	Displays the purchase order information.
• Build Number:	Displays the build number information of the TPD4 software used to create the project file.
• Creation Date:	Displays the project creation date.

Setup - Project Information Page (Cont.)	
• Revision Date:	Displays the last revision date for the project.
• Last Save Date:	Displays the last date the project was saved.
• Blink Rate:	Displays the feedback blink rate (10th of second).
• Job Comments:	Displays any comments associated to the job. These comments are taken from the TPD4 project file.

Setup - Time & Date Settings Page

Press the **Time** button on the *Setup Page* (see FIG. 58 on page 58) to access the *Time & Date Settings Page* (FIG. 61).

FIG. 61 Setup - Time & Date Settings Page

The options on this page allow you to view, set or edit the time and date information on the NetLinX Master to which the TPI-PRO/DVI is connected.

- The TPI does not have an on-board clock. This page both receives and sets the time/date of the NetLinX Master.
- If either the time or date is modified on this page and then updated to the Master (via the **Set Time** button), all devices communicating to that target Master are updated to reflect the new information.
- The only way to modify a TPI-PRO/DVI's time without altering the Master is to use NetLinX Code.

Setup - Time & Date Settings Page	
• Time Date Refresh/Set:	<ul style="list-style-type: none"> • The Get Time/Date button retrieves the Time and Date information from the Master. • The Set Time/Date button sets the Master to retain and save any time or date modifications made on the Time and Date Setup page.
• Time Display:	These fields display the time in 3 formats: <ul style="list-style-type: none"> • STANDARD • STANDARD AM/PM • 24 HOUR (military)

Setup - Time & Date Settings Page (Cont.)	
• Date Display:	These fields display the calendar date information in several different formats.
Set Date/Time:	<p>This section provides a user with both UP/DN arrow buttons to alter the Master's calendar date and time.</p> <p>The blue circle indicates which field is currently selected.</p> <ul style="list-style-type: none"> • Year: range = 2000 - 2037 • Month: range = 1 - 12 • Day: range = 1 - 31 • Hour: range = 1-24 (24-hour military) • Minute: range = 0 - 59 • Second: range = 0 - 59

Setup - Audio Settings Page

Press the **Audio** button on the *Setup Page* (see FIG. 58 on page 58) to access the *Audio Settings Page* (FIG. 62).



FIG. 62 Setup - Audio Settings Page

The options on the *Audio Settings* page allow you to adjust the master volume and default panel sounds on the TPI-PRO/DVI:

Setup - Audio Settings Page	
Master Volume:	<p>This section allows you to adjust the current sound level on the unit's internal speaker:</p> <ul style="list-style-type: none"> • Use the UP/DN buttons to adjust the volume output on the internal speakers (• Range = 0 - 100 • Default = 50 • The Internal Sound Level bargraph indicates the current sound level. • The Mute button mutes the volume. • The Play Test button plays a test WAV/MP3 file over the internal speakers.

Setup - Audio Settings Page (Cont.)

Default Panel Sounds:	Sets the unit to play either the default Button Hit sound (when you touch an active button) and/or the default Button Miss sound (when you touch a non-active button or any area outside of the active button). By default, Button Hit sound is <i>enabled</i> , and Button Miss sound is <i>disabled</i> .
-----------------------	--

Supported Sampling Rates for WAV and MP3 Audio

The TPI-PRO/DVI supports WAV and MP3 audio types, at the following sample rates:

Supported WAV / MP3 Audio Sample Rates		
• 48000Hz	• 24000Hz	• 12000Hz
• 44100Hz	• 22050Hz	• 11025Hz
• 32000Hz	• 16000Hz	• 8000Hz

Setup - Video Settings Page

Press the **Video** button on the *Setup Page* (see FIG. 58 on page 58) to access the *Video Settings Page*. The options in the *Video Settings* page allow you to configure the properties of the incoming video signal(s).

This page features up to four tabs (SLOT 1 - SLOT 4) - one for each source input on the TPI-PRO/DVI. If you are using a TPI-PRO/DVI-2 (which features two inputs), then the tabs for Slots 3 and 4 are disabled.

- These source inputs are labeled at the rear of the TPI-PRO/DVI (Input *N*).
- The Input type (*Composite*, *S-Video*, *Computer (VGA)*, *Component (YPrPb)*, or *DVI*) must be set for each input.

The options presented on this page differ according to the Input type selected:

- If you have selected **VGA** or **Component** as the Input Type, the Video Settings Page contains the options shown in FIG. 63.



FIG. 63 Setup - Video Settings Page (Input Type = VGA or Component)

- If you have selected **Composite** or **S-Video**, the Video Settings Page contains the options shown in FIG. 64.



FIG. 64 Setup - Video Settings Page (Input Type = Composite or S-Video)

Setup - Video Settings Page	
Input:	<p>Press to cycle through the options for video input types: <i>Composite 1/2/3</i>, <i>S-Video</i>, <i>Computer (VGA)</i>, <i>Component (YPrPb)</i>, and <i>DVI (TPI-PRO-DVI only)</i>.</p> <p>Composite 1/2/3:</p> <ul style="list-style-type: none"> • Composite 1 = Corresponds to a signal connected to the Red connector on the DVI-to-3RCA Male adaptor cable. • Composite 2 = Corresponds to a signal connected to the Green connector on the DVI-to-3RCA Male adaptor cable. • Composite 3 = Corresponds to a signal connected to the Blue connector on the DVI-to-3RCA Male adaptor cable. <p>Default = Composite 1</p> <p>Note (TPI-PRO-DVI only): When using a DVI source, set the input to DVI before attaching the DVI cable to the TPI-PRO-DVI. If a DVI source is attached before setting the input to DVI, you may need to reboot the source for it to recognize the DVI input description information required by the DVI standard.</p>
Resolution:	Press to open the Input Resolution Popup Page, to adjust the TPI-PRO/DVI's Input Resolution setting (see the <i>Configuring the Input Resolution (VGA & Component only)</i> section on page 69).
Status:	This read-only field indicates whether a video-sync signal is detected.
Version:	This read-only field indicates the firmware version currently loaded on the TPI-PRO/DVI.
Auto Adjust:	<p>Press to toggle between <i>Auto</i> detection and <i>Manual</i> setup.</p> <ul style="list-style-type: none"> • This option is only valid for VGA and Component Input signal types. • Default = Auto
Black & White:	<p>Press to toggle Black & White display mode.</p> <ul style="list-style-type: none"> • This option is only valid for Composite and S-Video Input signal types. • Default = Off

Setup - Video Settings Page (Cont.)	
Incoming Video Signal Window:	The video signal on the TPI-PRO/DVI Input that corresponds to the open tab is displayed in this video button (Input 1 is displayed on the Slot 1 tab, Input 2 is displayed on the Slot 2 tab, etc). Press inside the Incoming Video Signal Window to open the <i>Full Screen Settings</i> page.
Video Parameters:	The Video Parameters (i.e. <i>Brightness</i> , <i>Contrast</i> , <i>Saturation</i> , etc.) presented on this page depend on the Input Type assigned to the selected Input. See the <i>Video Parameters</i> section on page 67 for descriptions of all possible Video Parameters.
Default Settings:	Press to reset all video settings to their default values.
Undo Changes:	Press to disregard any changes made on the page since the last settings were saved.
Save Settings:	Press to save all changes made on this page.

Configuring Incoming Video Signals

In the *Video Settings* page, you can select any of the available source inputs by selecting the corresponding tab (Slot 1 - Slot 4) at the top of the page.

If the selected source input is receiving a video signal, this video is displayed in the Incoming Video Signal Window. Use the video settings on the right side of the page to adjust the incoming video signal.

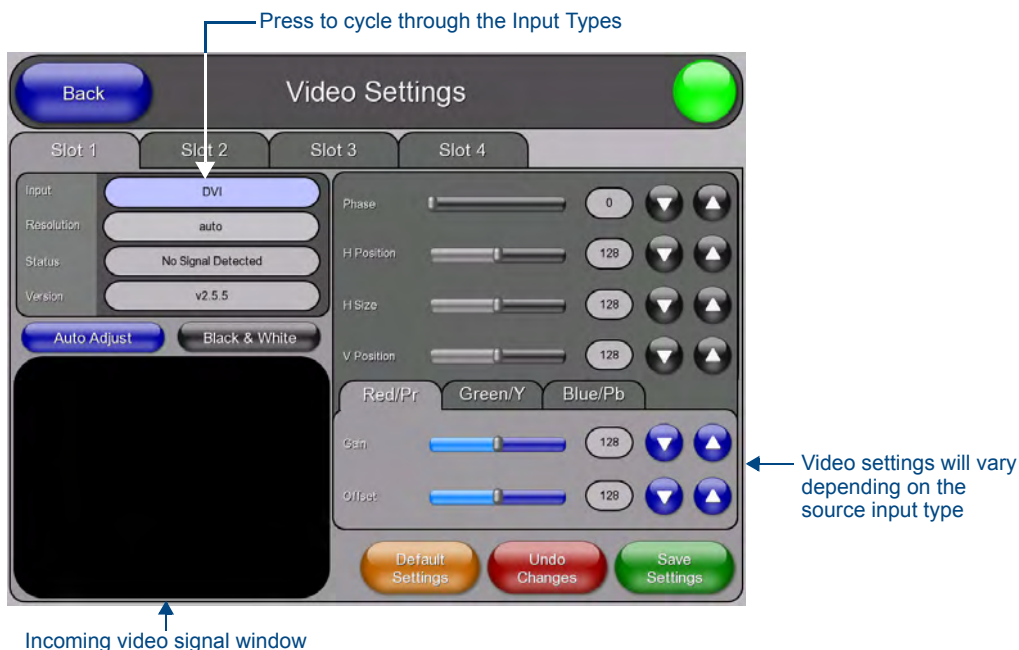


FIG. 65 Video Settings page (Slot 1 tab)

When using a non-touch enabled monitor, the incoming video image often must be adjusted to fit into the visible screen area. Refer to the *Setting the Output Resolution* section on page 34 for instructions on adjusting the position and size on a non-touch enabled monitor.

When using a touch monitor, the TOUCH DRIVER selected should compensate for the visible area. If not, continue with these steps.

1. Open the tab (Slot 1 - Slot 4) that corresponds to the Input that you want to adjust.
2. Press **Input** to cycle through the available Input Type options:

- Composite 1, Composite 2, Composite 3
 - Composite 1 Corresponds to a signal connected to the Red connector on the DVI-to-3RCA Male adaptor cable.
 - Composite 2 Corresponds to a signal connected to the Green connector on the DVI-to-3RCA Male adaptor cable.
 - Composite 3 Corresponds to a signal connected to the Blue connector on the DVI-to-3RCA Male adaptor cable.
- S-Video
- Computer (VGA)
- Component (YPrPb)
- DVI (*TPI-PRO-DVI only*)



When using a DVI source, set the input to DVI before attaching the DVI cable to the TPI-PRO-DVI. If a DVI source is attached before setting the input to DVI, you may need to reboot the source for it to recognize the DVI input description information required by the DVI standard.

3. Depending on the Input Type assigned to the selected Input, some or all of the video settings below are provided (FIG. 66):

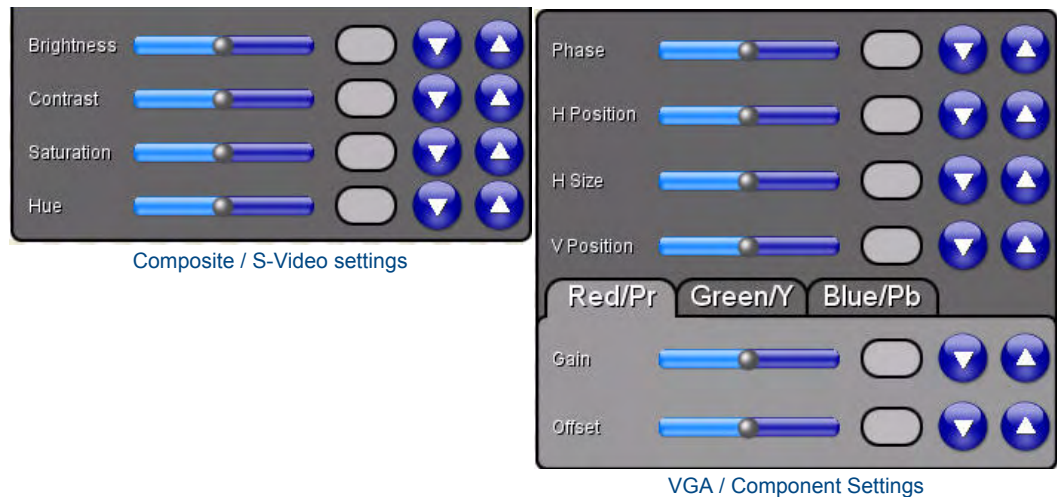


FIG. 66 Video Settings page - Video Settings

4. Use the **H Size** and **V Position** options to compensate for the visible area.
5. Press the **Save Settings** button to save your changes.
6. Press the **Back** button to return to the Setup page.

Video Parameters

Depending on the Input Type assigned to the selected Input, some or all of the following Video Parameters are available via the Video Settings Page:.

Video Parameters	
• Brightness:	Use the UP/DN buttons to adjust the brightness level of the incoming signal. <ul style="list-style-type: none"> • This option does not appear if you select Computer (VGA), Component (YPrPb), or DVI as the input type. • Range = 0 - 255 • Default = 128

Video Parameters (Cont.)	
• Contrast:	<p>Use the UP/DN buttons to adjust the contrast level of the incoming signal.</p> <ul style="list-style-type: none"> • This option does not appear if you select Computer (VGA), Component (YPrPb), or DVI as the input type. • Range = 0 - 255 • Default = 128
• Saturation:	<p>Use the UP/DN buttons to adjust the color saturation level of the incoming signal.</p> <ul style="list-style-type: none"> • This option does not appear if you select Computer (VGA), Component (YPrPb), or DVI as the input type. • Range = 0 - 255 • Default = 128
• Hue:	<p>Use the UP/DN buttons to adjust the hue level of the incoming signal.</p> <ul style="list-style-type: none"> • This option does not appear if you select Computer (VGA), Component (YPrPb), or DVI as the input type. • Range = 0 - 255 • Default = 128
• Phase:	<p>Use the UP/DN buttons to adjust the phase (RGB tracking/signal) level of the incoming signal.</p> <ul style="list-style-type: none"> • This option only appears if you select Computer (VGA) or Component (YPrPb) as the input type. • Range = 0 - 255 • Default = 0 <p>Note: Adjustments to the Phase value can resolve most image issues.</p>
• H Position	<p>Use the UP/DN buttons to alter the horizontal position of the incoming signal.</p> <ul style="list-style-type: none"> • This option only appears if you select Computer (VGA) or Component (YPrPb) as the input type. • Range = 0 - 255 • Default = 128
• H Size:	<p>Use the UP/DN buttons to alter the horizontal size of the incoming signal.</p> <ul style="list-style-type: none"> • This option only appears if you select Computer (VGA) or Component (YPrPb) as the input type. • Range = 0 - 255 • Default = 128
• V Position:	<p>Use the UP/DN buttons to alter the vertical position of the incoming signal.</p> <ul style="list-style-type: none"> • This option only appears if you select Computer (VGA) or Component (YPrPb) as the input type. • Range = 0 - 255 • Default = 128
• Red/Pr:	<p>Use the UP/DN buttons in this tab to adjust the Red/Pr <i>Gain</i> and <i>Offset</i> settings</p> <ul style="list-style-type: none"> • This option only appears if you have selected RGB or Component (YPrPb) as the input type. • Range = 0 - 255 • Default = 128
• Green/Y:	<p>Use the UP/DN buttons in this tab to adjust the Green/Y <i>Gain</i> and <i>Offset</i> settings</p> <ul style="list-style-type: none"> • This option only appears if you have selected RGB or Component (YPrPb) as the input type. • Range = 0 - 255 • Default = 128
• Blue/Pb:	<p>Use the UP/DN buttons in this tab to adjust the Blue/Pb <i>Gain</i> and <i>Offset</i> settings</p> <ul style="list-style-type: none"> • This option only appears if you have selected RGB or Component (YPrPb) as the input type. • Range = 0 - 255 • Default = 128

Configuring the Input Resolution (VGA & Component only)

If either VGA or Component has been selected as the Input Type, use the **Resolution** option in the *Video Settings* page to specify the resolution setting for each source input (FIG. 67).



The input resolution for all input types other than VGA and Component are automatically detected by the TPI-PRO/DVI.

Select any of the available source inputs by selecting the corresponding tab (Slot 1 - Slot 4) at the top of the page.

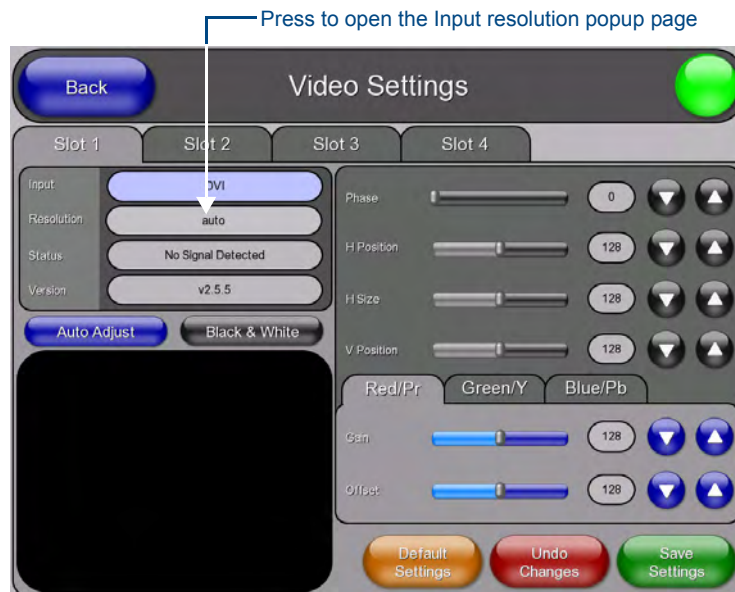


FIG. 67 Video Settings page (Slot 1 tab)

Press **Resolution** to access the *Input Resolution* popup page (FIG. 68).

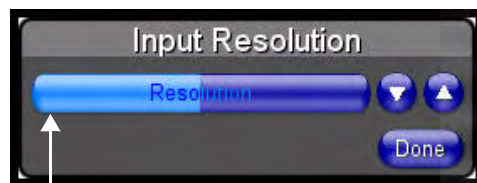


FIG. 68 Input Resolution popup page

- Use the slider on this page to select a known input resolution (use the Up/Down arrows to adjust).
- When the slider is set all the way to the left, it selects "**auto**", and the TPI-PRO/DVI automatically sets the input resolution.

Press **Done** to save the Input resolution setting and close the *Input Resolution* popup page.

The same functionality can be achieved via the "*resolution=*" option of the **^SLT** command (see page 137).

Protected Setup Page

Overview

Select **Protected Setup** on the *Setup* page to access the *Protected Setup* page (FIG. 69).

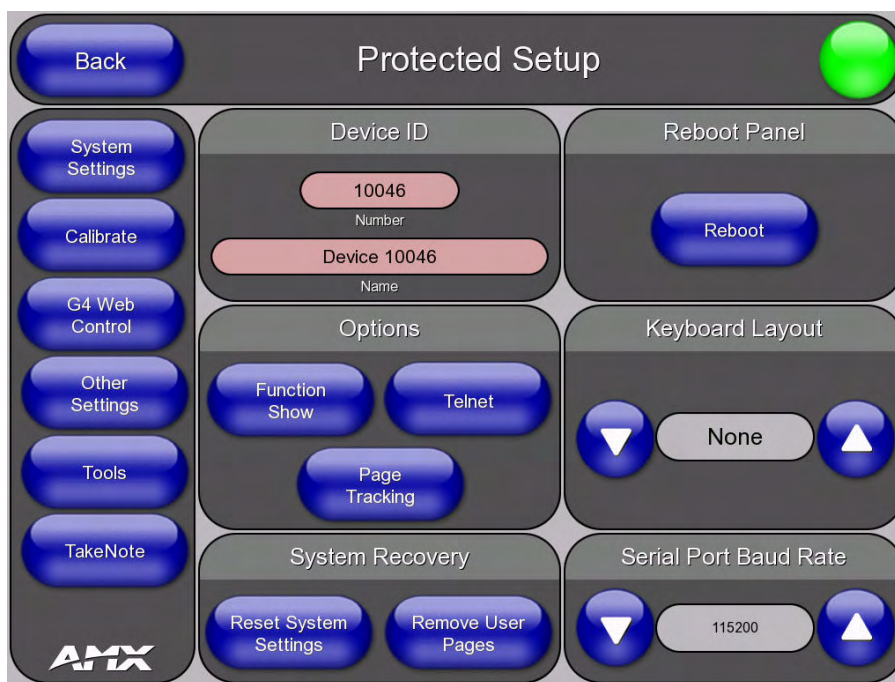
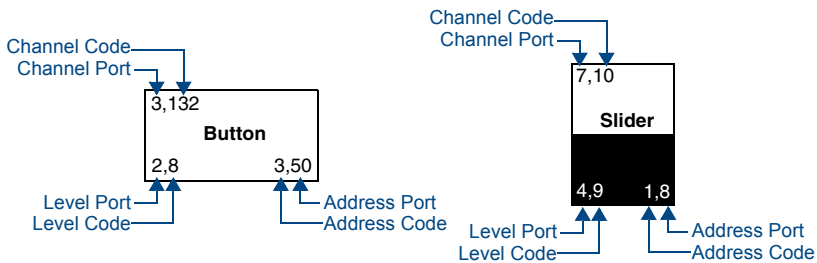


FIG. 69 Protected Setup page

This page is password-protected.

Enter the factory default password (**1988**) into the on-screen keypad to access this page.

Protected Setup Page	
Back:	Saves the changes and returns to the previously active touch panel page. Note: This option is included on all Protected Setup pages for convenience.
Connection Status icon:	This visual display of the connection status allows the user to have a current update of the TPI-PRO/DVI's connection status regardless of what page is currently active. <ul style="list-style-type: none"> A Lock only appears on the icon if the TPI-PRO/DVI has established a connection with a currently secured target Master (requiring a username and password). Note: This option is included on all Protected Setup pages for convenience.
Protected Setup Page Navigation Buttons:	The navigation buttons displayed along the left of the Protected Setup Page provide access to several additional protected configuration pages: <ul style="list-style-type: none"> System Settings - Press to access the <i>System Settings</i> page, where you can configure communication settings for both the NetLinX Master and the TPI-PRO/DVI. Refer to the <i>Protected Setup - System Settings Page</i> section on page 74. Calibrate - Press to access the <i>Calibrate</i> page, where you can calibrate a touch monitor. Refer to the <i>Calibrating the TPI-PRO/DVI</i> section on page 36. G4 Web Control - Press to access the <i>G4 Web Control</i> page, where you can enable or disable display and control of your panel (via the web) using a PC running a VNC client. Refer to the <i>Protected Setup - G4 Web Control Page</i> section on page 77.

Protected Setup Page (Cont.)	
Protected Setup Page Navigation Buttons (Cont.):	<ul style="list-style-type: none"> • Other Settings - Press to open a slide bar with the following options: <ul style="list-style-type: none"> Cache - press to access the <i>Cache</i> page, where you can adjust your Flash Cache settings. Refer to the <i>Protected Setup (Other Settings) - Cache Page</i> section on page 79. Passwords - press to access the <i>Password Setup</i> page, where you can specify up to five security passwords. Refer to the <i>Protected Setup (Other Settings) - Password Settings Page</i> section on page 81. Note: <i>The default password is 1988.</i> • Tools - Press to open a slide bar with the following options: <ul style="list-style-type: none"> Panel Logs - press to access the <i>Panel Logs</i> page, where you can view your panel's connection history. Refer to the <i>Protected Setup (Tools) - Panel Connection Logs Page</i> section on page 82. Panel Statistics - press to access the <i>Panel Statistics</i> page, where you can view the connection statistics for your panel. Refer to the <i>Protected Setup (Tools) - Panel Statistics Page</i> section on page 83. Connection Utility - press to open the <i>Connection Utility</i> page, where you can view connection statistics and information for your panel. Refer to the <i>Protected Setup (Tools) - Connection Utility Page</i> section on page 84 for details. • TakeNote - Press to access the <i>TakeNote Control</i> page, where you can enable or disable the TakeNote Annotation Application. Refer to the <i>Using Takenote™</i> section on page 169 for details.
Device ID:	<ul style="list-style-type: none"> • Number - Opens a keypad that is used to set and display the current device number. • Name - Opens an on-screen keyboard used to set and display the current device name. Note that this device name is displayed in the G4 Web Control page as the <i>Web Control Name</i> (see the <i>Using G4 Web Control®</i> section on page 165).
Options:	<p>Allows you to view/edit the following TPI-PRO/DVI features:</p> <ul style="list-style-type: none"> • Function Show - press to display button function information on each button on the panel pages: <p>The <i>Channel</i> port and code assignments are displayed in the top left corner.</p> <p>The <i>Level</i> port and code assignments are displayed in the bottom left corner.</p> <p>The <i>Address</i> port and code assignments are displayed in the bottom right corner.</p>  • Page Tracking - press to toggle page tracking on the TPI-PRO/DVI. When enabled, the TPI-PRO/DVI sends page data to the NetLinx Master, or vice versa depending on the touch panel settings. • Telnet - press to enable or disable direct telnet communication to the TPI-PRO/DVI. By default, Telnet is <i>Enabled</i>.

Protected Setup Page (Cont.)	
System Recovery:	<p>These options provide the ability to reset the TPI-PRO/DVI to factory default settings and/or wipe out all existing touch panel pages:</p> <ul style="list-style-type: none"> • Reset System Settings - push to wipe out all current configuration parameters on the TPI-PRO/DVI (including IP Addresses, Device Number assignments, Passwords, and all Presets). <p>Pressing this button launches the <i>Confirmation</i> dialog which prompts you to confirm your selection:</p> <div> <p>The image shows a 'Confirmation Dialog' box with a dark background. The text inside asks 'Are you sure you want to reset all system settings?'. At the bottom, there are two buttons: 'Yes' on the left and 'No' on the right.</p> </div> <p>The Yes option is enabled after a 5-second delay (press Yes to proceed).</p> <ul style="list-style-type: none"> • Remove User Pages - press to remove <i>all</i> TPD4 touch panel pages currently loaded on the TPI-PRO/DVI (including the pre-installed AMX Demo pages). <p>Pressing this button launches the <i>Confirmation</i> dialog which prompts you to confirm your selection.</p> <p>The Yes option is enabled after a 5-second delay (press Yes to proceed).</p>
Reboot Panel:	<p>Press to reboot the TPI-PRO/DVI.</p> <p>Note: A reboot is required to apply changes made in the Setup pages.</p>
Keyboard Layout:	Use the UP/DN buttons to select the type of keyboard you want to use.
Serial Port Baud Rate:	<p>Use the UP/DN buttons to set the baud rate on the front Serial port.</p> <ul style="list-style-type: none"> • Range = 1200 - 115200 • Default = 115200

Protected Setup - System Settings Page

Select **System Settings** on the *Protected Setup Page* (see FIG. 69 on page 71) to access the System Settings page (FIG. 70).

Back

System Settings

IP Settings

DHCP / Static

DHCP

IP Address

192.168.228.45

Subnet Mask

255.255.252.0

Gateway

192.168.228.2

Host Name

warlock-b-2

Primary DNS

192.168.20.7

Secondary DNS

192.168.20.9

Domain

amx.internal

Ethernet Mode

Auto

MAC Address

02:60:9F:FF:00:46

Master Connection

Type

Ethernet

Mode

URL

System Number

0

Master IP / URL

192.168.220.103

Master Port Number

1319

Username

Password

NDP Name

Device 10046

FIG. 70 Protected Setup - System Settings Page

The options on the *System Settings* page set the DNS Address information with its corresponding IP communication parameters, NetLinx Master communication settings, and reads the device number assigned to the G4 device.

- **Red** fields are user-editable
- **Blue** fields cycle through available choices
- **Grey** fields are read-only

Protected Setup - System Settings Page	
IP Settings:	
• DHCP/ Static:	Sets the G4 device to either DHCP or Static communication modes. <ul style="list-style-type: none">• <i>DHCP (Dynamic Host Configuration Protocol)</i> assigns IP Addresses from client stations logging onto a TCP/IP network via a DHCP server.• <i>Static IP</i> is a permanent IP Address that is assigned to a node in a TCP/IP network.• Default = DHCP
• IP Address:	Sets the IP Address assigned to the TPI-PRO/DVI.
• Subnet Mask:	Sets a subnetwork address to the TPI-PRO/DVI. <ul style="list-style-type: none">• <i>Subnetwork mask</i> is the technique used by the IP protocol to filter messages into a particular network segment (Subnet).
• Gateway:	Sets a gateway value to the TPI-PRO/DVI. <ul style="list-style-type: none">• <i>Gateway</i> is a computer that either performs protocol conversion between different types of networks/applications or acts as a go-between two or more networks that use the same protocols.
• Host Name:	Sets the host name of the TPI-PRO/DVI. Note: If the Host Name is left blank, it will automatically resort to the default - " <i>localhost</i> ".

Protected Setup - System Settings Page (Cont.)	
IP Settings (Cont.):	
• Primary DNS:	<p>Sets the address of the primary DNS server being used by the TPI-PRO/DVI for host name lookups.</p> <ul style="list-style-type: none"> • <i>DNS (Domain Name System)</i> is software that lets users locate computers on a local network or the Internet (TCP/IP network) by host and domain. • The DNS server maintains a database of host names for its' domain and their corresponding IP Addresses.
• Secondary DNS:	Sets the secondary DNS value to the TPI-PRO/DVI.
• Domain:	<p>Sets the unique name on the Internet to the TPI-PRO/DVI for DNS look-up.</p> <ul style="list-style-type: none"> • The TPI-PRO/DVI belongs to the DNS domain.
• Ethernet Mode:	<p>Sets the speed of the Ethernet connection to the TPI-PRO/DVI.</p> <ul style="list-style-type: none"> • The choices are: Auto (default), 10 Half Duplex, 10 Full Duplex, 100 Half Duplex, or 100 Full Duplex. • Default = Auto. This setting is recommended for most situations.
• MAC Address:	Displays a read-only field that is factory set by AMX for the built-in Ethernet interface.
Master Connection:	
• Ethernet Type:	<p>Sets the NetLinx Master to communicate to the TPI-PRO/DVI via Ethernet. Ethernet uses a CAT-5 cable (10/100Base T terminated in an RJ-45 connector) to network computers together and is used in most LAN (local area networks).</p> <p>This description is also used to refer to both wired and wireless communication.</p>
• Type:	<p>Cycles between the different connection modes (URL, Listen, Auto, NDP (UDP), and URL (UDP))</p> <ul style="list-style-type: none"> • URL - In this mode, enter the IP Address or DNS Name of the NetLinx Master, as well as the Master Port Number, and Username/Password (if required). The <i>System Number</i> field is read-only because the TPI-PRO/DVI obtains this information from the communicating Master. • Listen - In this mode, add the TPI-PRO/DVI address into the URL List in NetLinx Studio and set the connection mode to Listen. This mode allows the TPI-PRO/DVI to "listen" for the Master's communication signals. The System Number and Master IP/URL fields are read-only. • Auto - In this mode, enter the System Number and a username/password (if applicable). This mode is used when both the TPI-PRO/DVI and the NetLinx Master are on the same Subnet and the Master has its UDP feature enabled. The Master IP/URL field is read-only. • NDP (UDP) - In this mode, enter the IP/URL, Master Port Number, and username/password (if used) on the Master. • URL (UDP) - In this mode, enter the IP/URL, Master Port Number, and username/password (if used) on the Master.
• System Number:	<p>Allows you to enter a system number.</p> <ul style="list-style-type: none"> • Default value is 0 (zero).
• Master IP/URL:	Sets the Master IP or URL of the NetLinx Master.
• Master Port Number:	<p>Allows you to enter the port number used with the NetLinx Master.</p> <ul style="list-style-type: none"> • Default value is 1319.
• Username/Password:	<p>If the target Master has been previously secured, enter the alpha-numeric string (into each field) assigned to a pre-configured user profile on the Master.</p> <p>This profile should have the pre-defined level of access/configuration rights.</p>
• NDP Name:	Displays the Name that is shown on the Master's Manage NetLinx Web Page associated with the device File Name (read-only).

Refer to the *Configuring the Master Connection Settings* section on page 42 and *Configuring the Ethernet Connection on the NetLinx Master* section on page 47 for instructions on using the System Settings page.

Protected Setup - Calibrate Page

Select **Calibrate** on the *Protected Setup Page* (see FIG. 69 on page 71) to access the *Calibrate Page* (FIG. 71).

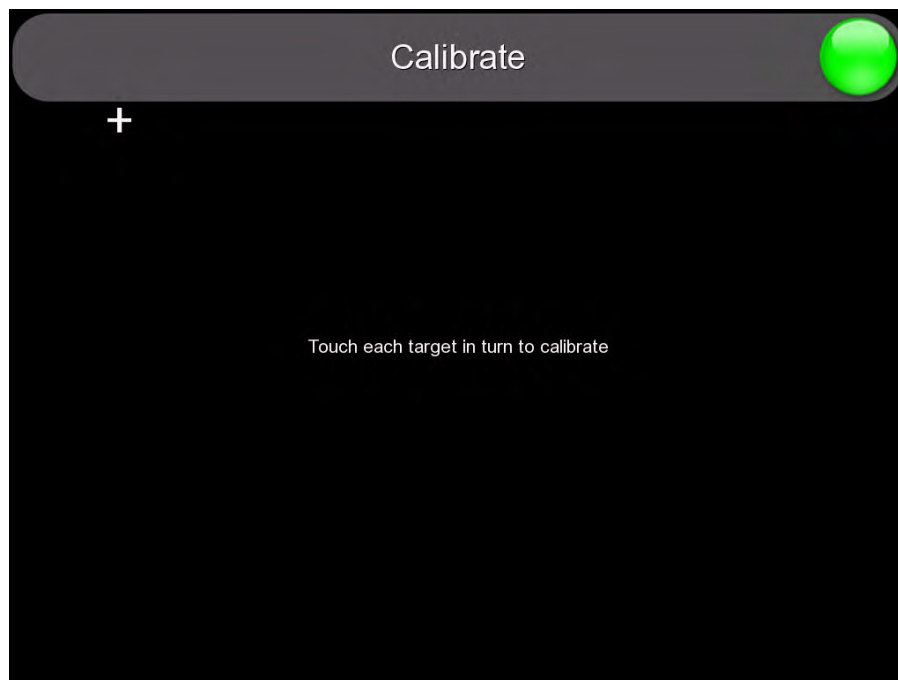


FIG. 71 Calibrate Page

The options on this page allow you to calibrate the input touch device (touch monitor) using the selected touch driver.



NOTE

Alternatively, this page can be accessed via the CALIBRATE pushbutton on the front panel.

- If no touch device is detected, the *Calibration* page is not available. In this case, the TPI-PRO/DVI will ignore any attempt to open the *Calibration* page.
- If the wrong touch driver is selected prior to the calibration process, press any of the front-panel pushbuttons to exit the *Calibration* page (and select a different touch driver).
- Press the crosshairs to calibrate the panel.
- When the calibration is complete, the Calibrate page closes (returning to the last open Configuration page).



NOTE

If you are using a non-touch enabled monitor, DO NOT PRESS THE CALIBRATE BUTTON. Refer to the Setting the Output Resolution section on page 34 for screen adjustment procedures.

Refer to the *Calibrating the TPI-PRO/DVI* section on page 36 for details.

Protected Setup - G4 Web Control Page

Select **G4 Web Control** on the *Protected Setup Page* (see FIG. 69 on page 71) to access the *G4 Web Control Page* (FIG. 72).

The screenshot shows the 'G4 Web Control' page with a dark grey header. At the top left is a 'Back' button, and at the top right is a green status indicator. Below the header, there are two main sections: 'G4 Web Control Settings' on the left and 'G4 Web Control Timeout' on the right. The 'G4 Web Control Settings' section contains an 'Enable' button and a list of settings: 'Network Interface Select' (Wired), 'Web Control Name' (Device 10046), 'Web Control Password' (None), 'Web Control Port' (5900), 'Max Number of Connections' (1), and 'Current Connection Count' (1). The 'G4 Web Control Timeout' section features a numeric input field set to '15' with up and down arrow buttons.

FIG. 72 Protected Setup - G4 Web Control Page

The options on the *G4 Web Control* page center around enabling and disabling both the display and control of your TPI-PRO/DVI, via the web (FIG. 72). An external PC running a VNC client (installed during the initial communication to the G4 device) makes this possible.

Each G4 device supports the open standard Virtual Network Computing (VNC) interface containing a VNC server, which allows it to accept a connection from any other device running a VNC client.

Once a connection is established to that target device, the client can control the TPI-PRO/DVI remotely.

The TPI-PRO/DVI supports up to four G4 Web Control users simultaneously connected to the TPI-PRO/DVI.

Protected Setup - G4 Web Control Page	
G4 Web Control Settings	
<ul style="list-style-type: none"> • Enable/Enabled: 	<p>The <i>Enable/Enabled</i> button toggles between the two G4 Web Control activation settings:</p> <ul style="list-style-type: none"> • Enable - deactivates the G4 Web Control feature on the TPI-PRO/DVI. • Enabled - activates the G4 Web Control feature on the TPI-PRO/DVI and allows an external PC running a VNC client to access the unit, after the remaining fields are configured. <p>Default = Enabled.</p>
<ul style="list-style-type: none"> • Network Interface Select 	<p>A read-only field that displays the method of communication to web.</p> <ul style="list-style-type: none"> • Wired is selected because it is the only method of communication to the web (via a direct Ethernet connection). This is a default setting since no wireless interface is available.

Protected Setup - G4 Web Control Page (Cont.)	
• Web Control Name:	The unique alpha-numeric string that is used as the display name of the TPI-PRO-DVI within the Web Control tab of the NetLinx Security browser window. Set the name through the <i>Device Name</i> field on the Protected Setup Page. This Web Control tab displays a G4 icon alongside the link to the Web Control Name given to this TPI-PRO/DVI.
• Web Control Password:	Allows you to enter the G4 Authentication session password associated for VNC web access of this TPI-PRO/DVI.
• Web Control Port:	Allows you to enter the port value that the VNC Web Server runs on. • Default = 5900 .
• Max Number of Connections:	Allows you view and set the maximum number of users (up to four) that can be simultaneously connected to the target TPI-PRO/DVI via G4 Web Control. Press to cycle through the selection options. • Range = 1-4. • Default = 1 .
• Current Connection Count:	This read-only field displays the current number of users connected to the target TPI-PRO/DVI via the web. Note: <i>This value cannot exceed the Maximum number field.</i>
G4 Web Control Timeout:	Sets the length of time (in minutes) the TPI-PRO/DVI can remain idle (no cursor movements) before the session is closed and the user is disconnected. • Range = 0-240 minutes (0 = G4 Web Control never times-out) • Default = 15

Refer to the *Using G4 Web Control®* section on page 165 for more detailed instructions on how to use the G4 Web Control page with the web-based NetLinx Security application.

Protected Setup - Other Settings

Select **Other Settings** on the *Protected Setup Page* (see FIG. 69 on page 71) to open a slider with the following options (FIG. 73):

- **Cache** - Press to access the *Cache Page* (FIG. 74)
- **Passwords** - Press to access the *Password Settings Page* (FIG. 75 on page 81)



FIG. 73 Protected Setup - Other Settings Slider

Protected Setup (Other Settings) - Cache Page

Select **Cache** from the *Other Settings* slider to access the *Cache Page* (FIG. 74):

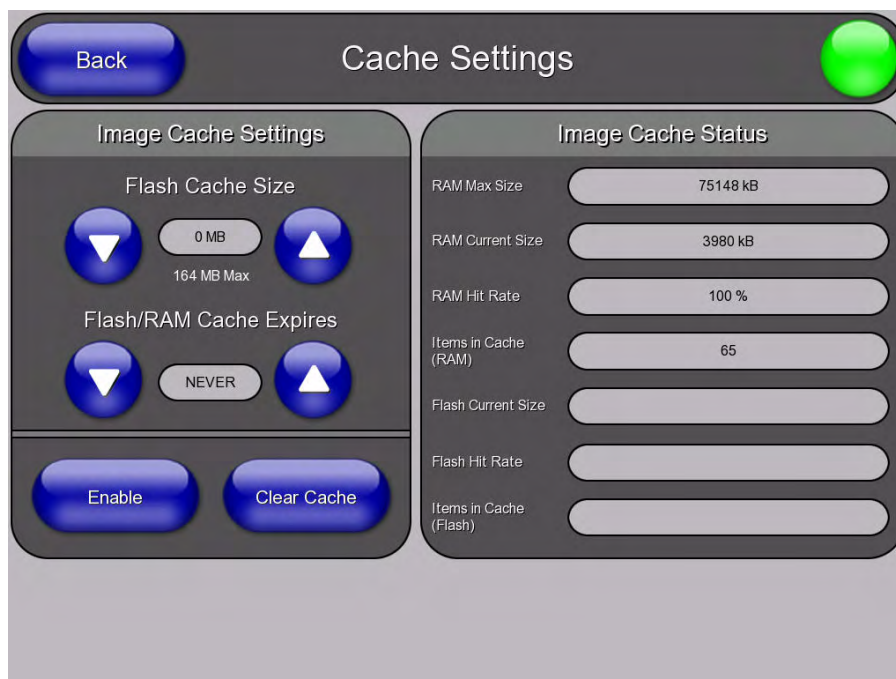


FIG. 74 Protected Setup (Other Settings) - Cache Page

The options on the *Cache* page allow you to configure the allocation of memory for image caching.

G4 Image Caching

The G4 graphics engine caches images to decrease load time of previously viewed images. RAM caching is always enabled, and images (both static and dynamic) are stored in the RAM cache as they are viewed.

The size of RAM cache is automatically configured to take into account available memory versus memory that may be needed by the panel later. As the RAM cache approaches its maximum size, the oldest items in the cache may be discarded to make room for newer items.

If Flash caching is enabled, dynamic images that would have been discarded will be moved to Flash, since it is typically faster to retrieve images on Flash than across a network.

Note that since static images are already stored on Flash, they are never moved to the Flash cache, so Flash caching applies only to dynamic images.

Images in Flash cache are moved back to RAM cache the next time they are viewed. As the Flash cache approaches its maximum size, the least recently used items may be discarded to make room for new items.

While RAM cache is always enabled, Flash memory can also be allocated for image caching. However, Flash memory is a secondary cache and is much slower than RAM cache (as it uses the local disk to store images).

Flash memory should not be used frequently, but it may be appropriate to use Flash memory in some environments that are dynamic image intensive, at times when RAM cache is easily exhausted and the time taken to access Flash memory would be faster than network latency.

For example, when large dynamic images are being used over slow wireless links, putting the images into Flash memory can improve performance, since the panel can spend more resources processing information rather than waiting on images to arrive from a slow network.

Protected Setup (Other Settings) - Cache Page	
Image Cache Settings	
• Flash Cache Size:	Press the Up and Down arrows to add and remove Flash memory. <ul style="list-style-type: none"> Flash memory allocation cannot exceed the amount of Flash memory on the panel. Default = 0
• Flash/RAM Cache Expires:	Press the Up and Down arrows to change the amount of time the images stay in cache memory. The options are: <ul style="list-style-type: none"> Never 2 Hours 8 Hours 1 Day 2 Days 5 Days Default = Never
• Enable:	Press this button to toggle the image Flash cache option On and Off. Default = Disabled
• Clear Cache:	Press this button to clear both the Flash and RAM cache of all stored images.
Image Cache Status	
RAM Max Size:	The maximum amount of memory available for all image caching.
RAM Current Size:	The memory that is currently in use for caching static and dynamic images.
RAM Hit Rate:	The percentage of image requests (static and dynamic) satisfied by accessing the cache. $100 * (\# \text{ of cache hits}) / (\# \text{ of cache hits} + \# \text{ of cache misses})$ <ul style="list-style-type: none"> # of cache hits - the number of times an image was requested that the image was found in the cache. If your hit rate is low, you may want to consider enabling Flash cache. # of cache misses - the number of times an image was requested that the image could not be found in the cache, and the image had to either be loaded from flash or obtained via the network (for dynamic images). It is considered a RAM Cache Miss even if the image is subsequently found in flash cache.
Items in Cache (RAM):	The number of images that are currently stored in the RAM cache.
Flash Current Size:	The maximum flash space allocated for image caching. Flash space is used for caching only when there is not enough available memory in the RAM cache for a newly requested image (it is used only for dynamic images).
Flash Hit Rate:	The percentage of image requests (dynamic only) that are satisfied by accessing the flash cache. $100 * (\# \text{ of flash cache hits}) / (\# \text{ of flash cache hits} + \# \text{ of flash cache misses})$ <ul style="list-style-type: none"> # of flash cache hits - # of times a dynamic image could not be found in RAM cache but was found in flash cache # of flash cache misses - # of times a dynamic image could not be found in either RAM or flash cache. RAM cache hits are not relevant in this calculation.
Items in Cache (Flash):	The number of images that are currently stored in the Flash cache.

Enabling Image Cache

By default, Image Cache is disabled. To enable Image Cache:

1. In the *Flash/RAM Cache Expires* field, use the UP/DOWN arrow buttons to set the cache expiration.
2. Press **Enable** to turn on image caching (the button appears illuminated when enabled).
3. In the *Flash Cache Size* field, use the UP/DOWN arrow buttons to set the amount of Flash memory used.



NOTE

The maximum amount of flash that can be allocated for caching is 75% of available flash.

Clearing the Image Cache

Press **Clear Cache**.

This clears all image cache currently stored on the panel (both Flash and RAM).

Checking Image Cache Status

All status information is located in the **Image Cache Status** section of the *Cache* page.

Protected Setup (Other Settings) - Password Settings Page

Select **Passwords** from the *Other Settings* slider (see FIG. 73 on page 78) to access the *Password Settings Page* (FIG. 75):



FIG. 75 Protected Setup (Other Settings) - Password Settings Page

The options in the *Password Settings* page allow you to assign passwords for the panel pages:

Protected Setup (Other Settings) - Password Settings Page	
Panel Passwords:	<p>Accesses the alphanumeric values associated to particular password sets.</p> <ul style="list-style-type: none"> PASSWORD 1, 2, 3, 4, 5 (protected) buttons open a keyboard where you can enter alphanumeric values associated to a selected password group. Clearing Password #5 removes the need to enter a password before accessing the Protected Setup page.



NOTE

The default for all five Passwords is "1988".

Protected Setup - Tools

Select **Tools** on the *Protected Setup Page* (see FIG. 69 on page 71) to open a slider with the following options (FIG. 73):

- **Panel Logs** - Press to access the *Panel Connection Logs* page (FIG. 77)
- **Panel Statistics** - Press to access the *Panel Statistics* page (FIG. 78 on page 83)
- **Connection Utility** - Press to access the *Connection Utility* page (FIG. 79 on page 84)



FIG. 76 Protected Setup - Tools Slider

Protected Setup (Tools) - Panel Connection Logs Page

Select **Panel Logs** from the *Tools* slider (see FIG. 76) to access the *Panel Connection Logs Page* (FIG. 77):

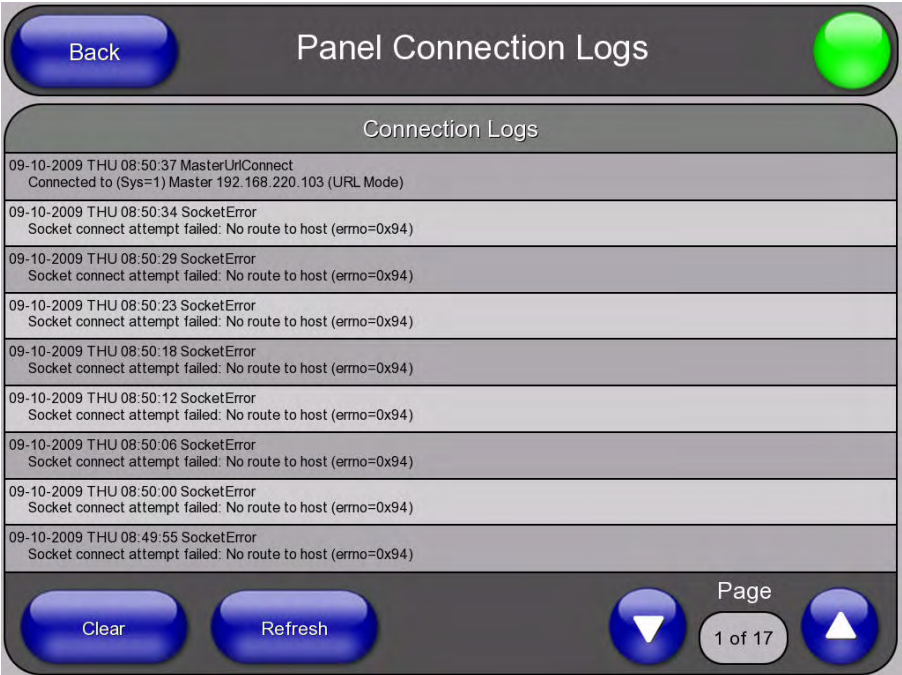


FIG. 77 Protected Setup (Tools) - Panel Connection Logs Page

The *Panel Connection Logs* page allows you to view and track the connection history of the panel.

Protected Setup (Tools) - Panel Connection Logs Page	
• Connection Logs:	A history of all connections, attempts, and failures for the panel.
• Clear:	Clears the Panel Connection Logs history.
• Refresh:	Refreshes the Panel Connection Logs history.
• Page:	Indicates the current page of the Panel Connection Logs. Use the Up and Down arrows to move from one page to the next.

Protected Setup (Tools) - Panel Statistics Page

Select **Panel Statistics** from the *Tools* slider (see FIG. 76) to access the *Panel Statistics Page* (FIG. 78):

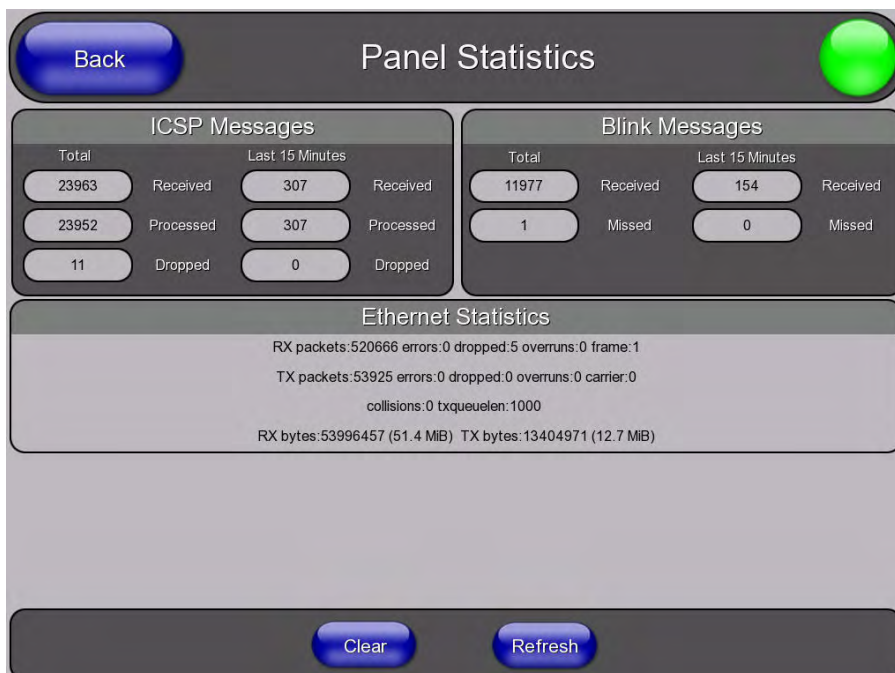


FIG. 78 Protected Setup (Tools) - Panel Statistics Page

The options on the *Panel Statistics* page allow you to track the connection status (including ICSP messages, Blink messages, Ethernet connection statistics, and Wireless connection statistics) for the panel.

Protected Setup (Tools) - Panel Statistics Page	
ICSP Messages:	Messages sent between the master and the touch panel; it is the protocol they use to communicate to each other.
• Total:	<ul style="list-style-type: none"> • <i>Received</i> - The total ICSP messages received by the panel. • <i>Processed</i> - The total ICSP messages processed by the panel. • <i>Dropped</i> - The total ICSP messages dropped by the panel.
• Last 15 Minutes:	<ul style="list-style-type: none"> • <i>Received</i> - The total ICSP messages received by the panel in the last 15 minutes. • <i>Processed</i> - The total ICSP messages processed by the panel in the last 15 minutes. • <i>Dropped</i> - The total ICSP messages dropped by the panel in the last 15 minutes.
Blink Messages:	The master sends this message once every 5 seconds to all connected devices.
• Total:	<ul style="list-style-type: none"> • <i>Received</i> - The total Blink messages received by the panel. • <i>Missed</i> - The total Blink messages missed by the panel.
• Last 15 Minutes:	<ul style="list-style-type: none"> • <i>Received</i> - The total Blink messages received by the panel in the last 15 minutes. • <i>Missed</i> - The total Blink messages missed by the panel in the last 15 minutes.
Ethernet Statistics:	The Ethernet connection statistics for the panel.
• Clear	Clears all panel connection statistics.
• Refresh	Refreshes all panel connection statistics.

Protected Setup (Tools) - Connection Utility Page

Select **Connection Utility** from the *Tools* slider (see FIG. 76) to access the *Connection Utility Page* (FIG. 79):

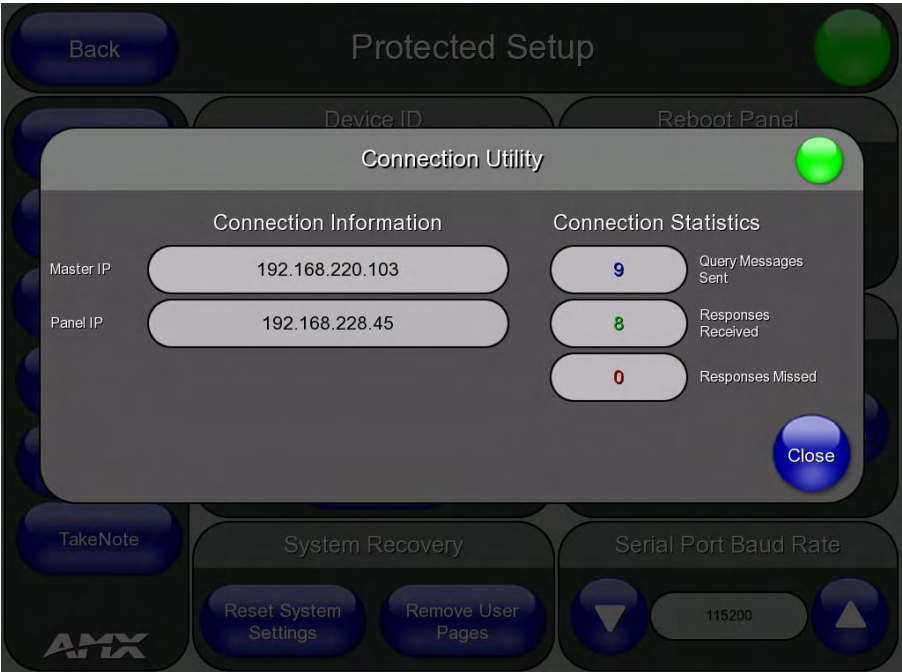


FIG. 79 Protected Setup (Tools) - Connection Utility Page

The options on the *Connection Utility* page allows you to view query and response statistics for your connection.

Connection Utility Page	
Connection Information	
• Master IP:	Displays the IP address of the network's Master.
• Panel IP:	Displays the IP address of the touch panel.
Connection Statistics	
• Query Messages Sent:	Displays the number of query messages sent from the panel to the Master.
• Responses Received:	Displays the number of responses the panel has received from the Master.
• Responses Missed:	Displays the number of expected responses from the Master that the panel missed.

Using the Connection Utility

1. Press the **Tools** button in the Protected Setup Navigation Buttons section. This opens the Tools menu.
2. Within the Tools menu, press the **Connection Utility** button. This launches the Connection Utility page.
3. Move the panel throughout your wireless network, and changes within the utility.
 - **Connection Information** indicates the IP of the connected master and the IP of your panel.
 - **Connection Statistics** show the current quality of the panel connection.
4. Push **Close** when you are done using the Connection Utility.

Protected Setup - TakeNote Control Page

Select **TakeNote** on the *Protected Setup Page* (see FIG. 69 on page 71) to access the *TakeNote Control Page* (FIG. 72).

The screenshot shows the 'TakeNote Control' page with a 'Back' button and a green status indicator. It is divided into two main sections: 'TakeNote Settings' and 'Web Server Settings'.

TakeNote Settings:

- Enable:** A blue button to toggle the TakeNote feature.
- TakeNote Port:** A red input field with the value '1541'.
- Confirm Client Connections:** A blue input field with the value 'No'.
- Max Number of Connections:** A blue input field with the value '8'.
- Current Connection Count:** A grey input field with the value '0'.
- Session Name:** A red input field with the value 'session'.
- Storage Location:** A blue input field with the value 'USB Priority'.
- Storage Available:** A grey input field with the value 'USB: N/A Local: 62652kB'.

Web Server Settings:

- Enable:** A blue button to toggle the web server feature.
- Web Server Port:** A red input field with the value '80'.
- Web Server Username:** A red input field with the value 'webusername'.
- Web Server Password:** A red input field with the value '****'.

FIG. 80 Protected Setup - TakeNote Control Page

The options on the *TakeNote Control* page center around enabling and disabling the TakeNote™ Annotation Application. The TakeNote application allows you to create on-screen annotations over the displayed video sources, using a Pointing device (i.e. USB mouse or touch screen) connected to a TPI-PRO or TPI-PRO-DVI. The TPI-PRO/DVI supports up to eight external TakeNote clients simultaneously, in addition to the internal connection. A remote client can be any other AMX G4 touch panel using either a Computer Control button with TakeNote enabled, or a TakeNote button.

Protected Setup - TakeNote Control Page	
TakeNote Settings	
• Enable/Enabled:	<p>The <i>Enable/Enabled</i> button toggles between the two TakeNote activation settings:</p> <ul style="list-style-type: none"> • Enable - deactivates the TakeNote feature on the TPI-PRO/DVI. • Enabled - activates the TakeNote feature on the TPI-PRO/DVI. <p>Default = <i>Disabled</i>.</p>
• TakeNote Port:	<p>Press within this field to invoke the on-screen TakeNote Port keypad, and enter the Port number on the TPI-PRO/DVI that will be reserved for use by TakeNote (default = 1541).</p> <p>This is the port number that remote TakeNote clients must specify in their G4 Computer Control button's TakeNote properties, or their TakeNote button's properties.</p>
• Confirm Client Connections:	<p>When a remote client attempts to connect to the device, a dialog is displayed on the screen asking whether the remote client should be allowed to connect.</p> <ul style="list-style-type: none"> • Select <i>Yes</i> on the dialog to allow the connection • Select <i>No</i> to deny it <p>Remote clients can connect at any time.</p>

Protected Setup - TakeNote Control Page (Cont.)	
• Max Number of Connections:	Allows you view and set the maximum number of users (up to 8) that can be simultaneously connected to the TPI-PRO/DVI to use TakeNote. Press to cycle through the selection options: <ul style="list-style-type: none"> • Range = 1-8. • Default = 8.
• Current Connection Count:	This read-only field displays the current number of TakeNote users connected to the TPI-PRO/DVI. Note: <i>This value cannot exceed the Maximum Number of Connections field.</i>
• Session Name:	Selecting this field will show a keyboard on the screen that allows the name of the current "session" to be entered. The Session Name is prefix to the file names of any saved images made during that session.
• Storage Location:	This option allows you to specify where to save captured TakeNote screen images. Captured TakeNote screen images are saved as JPG files. Press to cycle through the selection options: <ul style="list-style-type: none"> • USB Priority (default) - This setting saves the image to a USB stick inserted into any of the USB Type A Input ports on the TPI-PRO/DVI, if a USB stick is present (see the <i>Wiring and Device Connections</i> section on page 15). If a USB stick is not present, images will be saved to the internal local disk. • Local Disk - This setting saves the image to the TPI-PRO/DVI's internal hard drive. • disabled - This option disables the Save feature. Note: <i>Refer to the Capturing and Saving the Screen Image section on page 174 for details on saving captured TakeNote screen images.</i>
• Storage Available:	This read-only field indicates the amount of storage space available on the Local Disk, as well as the USB stick (if present).
Web Server Settings	
• Enable/Enabled:	The <i>Enable/Enabled</i> button toggles between the two Web Server activation settings: <ul style="list-style-type: none"> • Enable - deactivates the Web Server feature on the TPI-PRO/DVI. • Enabled - activates the Web Server feature on the TPI-PRO/DVI. Default = <i>Disabled</i> .
• Web Server Port:	Press within this field to invoke the on-screen WebServer Port keypad, and enter the Port number on the TPI-PRO/DVI that will be reserved for use by the Web Server. • Default = 80.
• Web Server Username:	Press within this field to invoke the on-screen WebServer User Name keyboard, and enter the Username that will be required to connect to the TPI-PRO/DVI from a remote PC. Note: <i>This is can be left blank is no user authentication is desired.</i>
• Web Server Password:	Press within this field to invoke the on-screen WebServer Password keyboard, and enter the Password that will be required to connect to the TPI-PRO/DVI from a remote PC. Note: <i>This is can be left blank is no user authentication is desired.</i>

Refer to the *Using Takenote™* section on page 169 for more detailed instructions on how to use the G4 Web Control page with the web-based NetLinX Security application.

NetLinX Programming

Overview

You can program the TPI-PRO/DVI using the commands described in this section to perform a wide variety of operations.

**WARNING**

*Verify you are using the latest NetLinX Master firmware. Verify the NetLinX Studio program being used is version **2.8** or higher and TPD4 is version **2.11** or higher.*

Button Assignments

• Channel Range:	1 - 4000 Button push and Feedback (per address port)
• Variable Text range:	1 - 4000 (per address port)
• Button States Range:	1 - 256 (0 = All states, for General buttons 1 = Off state and 2 = On state).
• Level Range:	1 - 600 (Default level value 0 - 255, can be set up to 1 - 65535)
• Address port Range:	1 - 100

**NOTE**

Button assignments can only be adjusted in TPD4, not on the panels themselves.

Color, Border And Font Names/ID #'s

The following information provides the programming numbers for colors, fonts, and borders.

Colors can be used to set the colors on buttons, sliders, and pages. The lowest color number represents the lightest color-specific display; the highest number represents the darkest display. For example, 0 represents light red, and 5 is dark red.

RGB Triplets And Names For Basic 88 Colors

RGB Triplets And Names For Basic 88 Colors									
Index #	Name	Red	Green	Blue	Index #	Name	Red	Green	Blue
00	Very Light Red	255	0	0	46	Dark Aqua	0	64	127
01	Light Red	223	0	0	47	Very Dark Aqua	0	48	95
02	Red	191	0	0	48	Very Light Blue	0	0	255
03	Medium Red	159	0	0	49	Light Blue	0	0	223
04	Dark Red	127	0	0	50	Blue	0	0	191
05	Very Dark Red	95	0	0	51	Medium Blue	0	0	159
06	Very Light Orange	255	128	0	52	Dark Blue	0	0	127
07	Light Orange	223	112	0	53	Very Dark Blue	0	0	95
08	Orange	191	96	0	54	Very Light Purple	128	0	255
09	Medium Orange	159	80	0	55	Light Purple	112	0	223
10	Dark Orange	127	64	0	56	Purple	96	0	191
11	Very Dark Orange	95	48	0	57	Medium Purple	80	0	159
12	Very Light Yellow	255	255	0	58	Dark Purple	64	0	127
13	Light Yellow	223	223	0	59	Very Dark Purple	48	0	95
14	Yellow	191	191	0	60	Very Light Magenta	255	0	255
15	Medium Yellow	159	159	0	61	Light Magenta	223	0	223
16	Dark Yellow	127	127	0	62	Magenta	191	0	191
17	Very Dark Yellow	95	95	0	63	Medium Magenta	159	0	159
18	Very Light Lime	128	255	0	64	Dark Magenta	127	0	127
19	Light Lime	112	223	0	65	Very Dark Magenta	95	0	95
20	Lime	96	191	0	66	Very Light Pink	255	0	128
21	Medium Lime	80	159	0	67	Light Pink	223	0	112
22	Dark Lime	64	127	0	68	Pink	191	0	96
23	Very Dark Lime	48	95	0	69	Medium Pink	159	0	80
24	Very Light Green	0	255	0	70	Dark Pink	127	0	64
25	Light Green	0	223	0	71	Very Dark Pink	95	0	48
26	Green	0	191	0	72	White	255	255	255
27	Medium Green	0	159	0	73	Grey1	238	238	238
28	Dark Green	0	127	0	74	Grey3	204	204	204
29	Very Dark Green	0	95	0	75	Grey5	170	170	170
30	Very Light Mint	0	255	128	76	Grey7	136	136	136
31	Light Mint	0	223	112	77	Grey9	102	102	102
32	Mint	0	191	96	78	Grey4	187	187	187
33	Medium Mint	0	159	80	79	Grey6	153	153	153
34	Dark Mint	0	127	64	80	Grey8	119	119	119
35	Very Dark Mint	0	95	48	81	Grey10	85	85	85
36	Very Light Cyan	0	255	255	82	Grey12	51	51	51
37	Light Cyan	0	223	223	83	Grey13	34	34	34
38	Cyan	0	191	191	84	Grey2	221	221	221
39	Medium Cyan	0	159	159	85	Grey11	68	68	68
40	Dark Cyan	0	127	127	86	Grey14	17	17	17
41	Very Dark Cyan	0	95	95	87	Black	0	0	0
42	Very Light Aqua	0	128	255	255	TRANSPARENT	99	53	99
43	Light Aqua	0	112	223					
44	Aqua	0	96	191					
45	Medium Aqua	0	80	159					

Fixed Fonts and ID Numbers

Font styles can be used to program the text fonts on buttons, sliders, and pages. The following table shows the default font type and their respective ID numbers generated by TPDesign4.

Default Font Styles and ID Numbers					
Font ID #	Font type	Size	Font ID #	Font type	Size
1	Courier New	9	19	Arial	9
2	Courier New	12	20	Arial	10
3	Courier New	18	21	Arial	12
4	Courier New	26	22	Arial	14
5	Courier New	32	23	Arial	16
6	Courier New	18	24	Arial	18
7	Courier New	26	25	Arial	20
8	Courier New	34	26	Arial	24
9	AMX Bold	14	27	Arial	36
10	AMX Bold	20	28	Arial Bold	10
11	AMX Bold	36	29	Arial Bold	8
Variable Fonts start at 32.					



NOTE

You must import fonts into a TPDesign4 project file. The font ID numbers are assigned by TPDesign4. These values are also listed in the **Generate Programmer's Report**.

Slider/Cursor Names

Default Font Styles and ID Numbers	
Bargraph slider names	Joystick Cursor names
None	None
Ball	Arrow
Circle -L	Ball
Circle -M	Circle
Circle -S	Crosshairs
Precision	Gunsight
Rectangle -L	Hand
Rectangle -M	Metal
Rectangle -S	Spiral
Windows	Target
Windows Active	View Finder

Border Styles By Name

You cannot use the following number values for programming purposes when changing border styles. TPD4 border styles can ONLY be changed by using the name.

Border Styles By Name			
1	None	80	Menu Bottom Rounded 15
2	AMX Elite -L	81	Menu Bottom Rounded 25
3	AMX Elite -M	82	Menu Bottom Rounded 35
4	AMX Elite -S	83	Menu Bottom Rounded 45
5	Bevel -L	84	Menu Bottom Rounded 55
6	Bevel -M	85	Menu Bottom Rounded 65
7	Bevel -S	86	Menu Bottom Rounded 75
8	Circle 15	87	Menu Bottom Rounded 85
9	Circle 25	88	Menu Bottom Rounded 95
10	Circle 35	89	Menu Bottom Rounded 105
11	Circle 45	90	Menu Bottom Rounded 115
12	Circle 55	91	Menu Bottom Rounded 125
13	Circle 65	92	Menu Bottom Rounded 135
14	Circle 75	93	Menu Bottom Rounded 145
15	Circle 85	94	Menu Bottom Rounded 155
16	Circle 95	95	Menu Bottom Rounded 165
17	Circle 105	96	Menu Bottom Rounded 175
18	Circle 115	97	Menu Bottom Rounded 185
19	Circle 125	98	Menu Bottom Rounded 195
20	Circle 135	99	Menu Top Rounded 15
21	Circle 145	100	Menu Top Rounded 25
22	Circle 155	101	Menu Top Rounded 35
23	Circle 165	102	Menu Top Rounded 45
24	Circle 175	103	Menu Top Rounded 55
25	Circle 185	104	Menu Top Rounded 65
26	Circle 195	105	Menu Top Rounded 75
27	Cursor Bottom	106	Menu Top Rounded 85
28	Cursor Bottom with Hole	107	Menu Top Rounded 95
29	Cursor Top	108	Menu Top Rounded 105
30	Cursor Top with Hole	109	Menu Top Rounded 115
31	Cursor Left	110	Menu Top Rounded 125
32	Cursor Left with Hole	111	Menu Top Rounded 135
33	Cursor Right	112	Menu Top Rounded 145
34	Cursor Right with Hole	113	Menu Top Rounded 155
35	Custom Frame	114	Menu Top Rounded 165
36	Diamond 15	115	Menu Top Rounded 175
37	Diamond 25	116	Menu Top Rounded 185
38	Diamond 35	117	Menu Top Rounded 195
39	Diamond 45	118	Menu Right Rounded 15
40	Diamond 55	119	Menu Right Rounded 25
41	Diamond 65	120	Menu Right Rounded 35
42	Diamond 75	121	Menu Right Rounded 45
43	Diamond 85	122	Menu Right Rounded 55
44	Diamond 95	123	Menu Right Rounded 65
45	Diamond 105	124	Menu Right Rounded 75
46	Diamond 115	125	Menu Right Rounded 85
47	Diamond 125	126	Menu Right Rounded 95
48	Diamond 135	127	Menu Right Rounded 105
49	Diamond 145	128	Menu Right Rounded 115
50	Diamond 155	129	Menu Right Rounded 125
51	Diamond 165	130	Menu Right Rounded 135
52	Diamond 175	131	Menu Right Rounded 145
53	Diamond 185	132	Menu Right Rounded 155
54	Diamond 195	133	Menu Right Rounded 165
55	Double Bevel -L	134	Menu Right Rounded 175
56	Double Bevel -M	135	Menu Right Rounded 185
57	Double Bevel -S	136	Menu Right Rounded 195
58	Double Line	137	Menu Left Rounded 15
59	Fuzzy	138	Menu Left Rounded 25
60	Glow - L	139	Menu Left Rounded 35
61	Glow -S	140	Menu Left Rounded 45
62	Help Down	141	Menu Left Rounded 55
63	Neon Active -L	142	Menu Left Rounded 65
64	Neon Active -S	143	Menu Left Rounded 75
65	Neon Inactive -L	144	Menu Left Rounded 85
66	Neon Inactive -S	145	Menu Left Rounded 95
67	Oval H 60x30	146	Menu Left Rounded 105
68	Oval H 100x50	147	Menu Left Rounded 115
69	Oval H 150x75	148	Menu Left Rounded 125
70	Oval H 200x100	149	Menu Left Rounded 135
71	Oval V 30x60	150	Menu Left Rounded 145
72	Oval V 50x100	151	Menu Left Rounded 155
73	Oval V 75x150	152	Menu Left Rounded 165
74	Oval V 100x200	153	Menu Left Rounded 175
75	Picture Frame	154	Menu Left Rounded 185
76	Quad Line	155	Menu Left Rounded 195
77	Single Line		
78	Windows Style Popup		
79	Windows Style Popup (Status Bar)		

Border Styles By Numbers

Border Styles By Numbers			
No Border	0-1	Picture frame	10-11
Single line	2	Double line	12
Double line	3	Bevel-S	20
Quad line	4	Bevel-M	21
Circle 15	5-6	Circle 15	22-23
Single line	7	Neon inactive-S	24-27
Double line	8	Diamond 55	40-41
Quad line	9		

Text Effects Names

Text Effects Names	
Glow -S	Soft Drop Shadow 1 with Outline
Glow -M	Soft Drop Shadow 2 with Outline
Glow -L	Soft Drop Shadow 3 with Outline
Glow -X	Soft Drop Shadow 4 with Outline
Outline -S	Soft Drop Shadow 5 with Outline
Outline -M	Soft Drop Shadow 6 with Outline
Outline -L	Soft Drop Shadow 7 with Outline
Outline -X	Soft Drop Shadow 8 with Outline
Soft Drop Shadow 1	Medium Drop Shadow 1 with Outline
Soft Drop Shadow 2	Medium Drop Shadow 2 with Outline
Soft Drop Shadow 3	Medium Drop Shadow 3 with Outline
Soft Drop Shadow 4	Medium Drop Shadow 4 with Outline
Soft Drop Shadow 5	Medium Drop Shadow 5 with Outline
Soft Drop Shadow 6	Medium Drop Shadow 6 with Outline
Soft Drop Shadow 7	Medium Drop Shadow 7 with Outline
Soft Drop Shadow 8	Medium Drop Shadow 8 with Outline
Medium Drop Shadow 1	Hard Drop Shadow 1 with Outline
Medium Drop Shadow 2	Hard Drop Shadow 2 with Outline
Medium Drop Shadow 3	Hard Drop Shadow 3 with Outline
Medium Drop Shadow 4	Hard Drop Shadow 4 with Outline
Medium Drop Shadow 5	Hard Drop Shadow 5 with Outline
Medium Drop Shadow 6	Hard Drop Shadow 6 with Outline
Medium Drop Shadow 7	Hard Drop Shadow 7 with Outline
Medium Drop Shadow 8	Hard Drop Shadow 8 with Outline
Hard Drop Shadow 1	
Hard Drop Shadow 2	
Hard Drop Shadow 3	
Hard Drop Shadow 4	
Hard Drop Shadow 5	
Hard Drop Shadow 6	
Hard Drop Shadow 7	
Hard Drop Shadow 8	

SEND_COMMANDs

- New command format starts with a '^'
- '^' commands have the capability of assigning a variable text address range and button state range.
- Variable text address ranges allow the user to target 1 or more variable text channels in a single command.
- Button States range allow the user to target 1 or more states of a variable text button with a single command.
- "." Character is used for the 'through' notation and "&" character is used for the 'And' notation to specify the variable text address range and Button States range.

Example:

```
SEND_COMMAND D:P:S, "'^JSB-500.504&510.515,1&2,1' "
```

- '^JSB-' - Set picture alignment
- '500.504&510.515' - For variable text range 500-504 & 510-515
- '1&2' - For the OFF & ON states of the button
- '1' - Picture alignment to upper left corner

Page Commands



A device must first be defined in the NetLinx programming language with values for the Device: Port: System (in all programming examples - Panel is used in place of these values and represents all compatible G4 devices).

The following NetLinx Page Commands are supported by the TPI-PRO/DVI, and are not case sensitive.

Page Commands	
@APG Add a specific popup page to a specified popup group.	Add the popup page to a group if it does not already exist. If the new popup is added to a group which has a popup displayed on the current page along with the new pop-up, the displayed popup will be hidden and the new popup will be displayed. Syntax: <pre>"@APG-<popup page name>;<popup group name>"</pre> Variables: <ul style="list-style-type: none"> popup page name = 1 - 50 ASCII characters. Name of the popup page. popup group name = 1 - 50 ASCII characters. Name of the popup group. Example: <pre>SEND_COMMAND Panel, "@APG-Popup1;Group1"</pre> Adds the popup page 'Popup1' to the popup group 'Group1'.
@CPG Clear all popup pages from specified popup group.	Syntax: <pre>"@CPG-<popup group>"</pre> Variable: <ul style="list-style-type: none"> popup group = 1 - 50 ASCII characters. Name of the popup group. Example: <pre>SEND_COMMAND Panel, "@CPG-Group1"</pre> Clears all popup pages from the popup group 'Group1'.
@DPG Delete a specific popup page from specified popup group if it exists.	Syntax: <pre>"@DPG-<popup page name>;<popup group name>"</pre> Variables: <ul style="list-style-type: none"> popup page name = 1 - 50 ASCII characters. Name of the popup page. popup group name = 1 - 50 ASCII characters. Name of the popup group. Example: <pre>SEND_COMMAND Panel, "@DPG-Popup1;Group1"</pre> Deletes the popup page 'Popup1' from the popup group 'Group1'.
@PDR Set the popup location reset flag.	If the flag is set, the popup will return to its default location on show instead of its last drag location. Syntax: <pre>"@PDR-<popup page name>;<reset flag>"</pre> Variable: <ul style="list-style-type: none"> popup page name = Name of the page on which the popup is displayed (1 - 50 ASCII characters). reset flag = 1 = Enable reset flag, 0 = Disable reset flag Example: <pre>SEND_COMMAND Panel, "@PDR-Popup1;1"</pre> Popup1 will return to its default location when turned On.

Page Commands (Cont.)	
@PHE Set the hide effect for the specified popup page to the named hide effect.	<p>Syntax:</p> <pre>"'@PHE-<popup page name>;<hide effect name>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • popup page name = Name of the page on which the popup is displayed (1 - 50 ASCII characters). • hide effect name = Refers to the popup effect names being used. <p>Example:</p> <pre>SEND_COMMAND Panel, "'@PHE-Popup1;Slide Left' "</pre> <p>Sets the Popup1 hide effect name to 'Slide Left'.</p>
@PHP Set the hide effect position.	<p>Only 1 coordinate is ever needed for an effect, however, the command will specify both. This command sets the location at which the effect will end at.</p> <p>Syntax:</p> <pre>"'@PHP-<popup page name>;<x coordinate>,<y coordinate>' "</pre> <p>Variable:</p> <ul style="list-style-type: none"> • popup page name = 1 - 50 ASCII characters. Name of the page on which the popup is displayed. <p>Example:</p> <pre>SEND_COMMAND Panel, "'@PHP-Popup1;75,0' "</pre> <p>Sets the Popup1 hide effect x-coordinate value to 75 and the y-coordinate value to 0.</p>
@PHT Set the hide effect time for the specified popup page.	<p>Syntax:</p> <pre>"'@PHT-<popup page name>;<hide effect time>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • popup page name = 1 - 50 ASCII characters. Name of the page on which the popup is displayed. • hide effect time = Given in 1/10ths of a second. <p>Example:</p> <pre>SEND_COMMAND Panel, "'@PHT-Popup1;50' "</pre> <p>Sets the Popup1 hide effect time to 5 seconds.</p>
@PPA Close all popups on a specified page.	<p>Same as the 'Clear Page' command in TPDesign4.</p> <p>Note: <i>If the page name is empty, the current page is used.</i></p> <p>Syntax:</p> <pre>"'@PPA-<page name>' "</pre> <p>Variable:</p> <ul style="list-style-type: none"> • page name = 1 - 50 ASCII characters. Name of the page on which the popup is displayed. <p>Example:</p> <pre>SEND_COMMAND Panel, "'@PPA-Page1' "</pre> <p>Close all popups on Page1.</p>

Page Commands (Cont.)	
@PPF Deactivate a specific popup page on either a specified page or the current page.	<p><i>If the page name is empty, the current page is used (see example 2). If the popup page is part of a group, the whole group is deactivated. This command works in the same way as the 'Hide Popup' command in TPDesign4.</i></p> <p>Syntax: <code>" '@PPF-<popup page name>;<page name>' "</code></p> <p>Variables:</p> <ul style="list-style-type: none"> • popup page name = 1 - 50 ASCII characters. Name of the popup page. • page name = 1 - 50 ASCII characters. Name of the page on which the popup is displayed. <p>Example: <code>SEND_COMMAND Panel, "'@PPF-Popup1;Main' "</code> Deactivates the popup page 'Popup1' on the Main page.</p> <p>Example 2: <code>SEND_COMMAND Panel, "'@PPF-Popup1' "</code> Deactivates the popup page 'Popup1' on the current page.</p>
@PPG Toggle a specific popup page on either a specified page or the current page.	<p><i>If the page name is empty, the current page is used (see example 2). Toggling refers to the activating/deactivating (On/Off) of a popup page. This command works in the same way as the 'Toggle Popup' command in TPDesign4.</i></p> <p>Syntax: <code>" '@PPG-<popup page name>;<page name>' "</code></p> <p>Variable:</p> <ul style="list-style-type: none"> • popup page name = 1 - 50 ASCII characters. Name of the popup page. • page name = 1 - 50 ASCII characters. Name of the page on which the popup is displayed. <p>Example: <code>SEND_COMMAND Panel, "'@PPG-Popup1;Main' "</code> Toggles the popup page 'Popup1' on the 'Main' page from one state to another (On/Off).</p> <p>Example 2: <code>SEND_COMMAND Panel, "'@PPG-Popup1' "</code> Toggles the popup page 'Popup1' on the current page from one state to another (On/Off).</p>
@PPK Kill a specific popup page from all pages.	<p>Kill refers to the deactivating (Off) of a popup window from all pages. If the pop-up page is part of a group, the whole group is deactivated.</p> <p>This command works in the same way as the 'Clear Group' command in TPDesign4.</p> <p>Syntax: <code>" '@PPK-<popup page name>' "</code></p> <p>Variable:</p> <ul style="list-style-type: none"> • popup page name = 1 - 50 ASCII characters. Name of the popup page. <p>Example: <code>SEND_COMMAND Panel, "'@PPK-Popup1' "</code> Kills the popup page 'Popup1' on all pages.</p>

Page Commands (Cont.)	
@PPM Set the modality of a specific popup page to Modal or NonModal.	<p>A Modal popup page, when active, only allows you to use the buttons and features on that popup page. All other buttons on the panel page are inactivated.</p> <p>Syntax:</p> <pre>" '@PPM-<popup page name>;<mode>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • popup page name = 1 - 50 ASCII characters. Name of the popup page. • mode = NONMODAL converts a previously Modal popup page to a NonModal. MODAL converts a previously NonModal popup page to Modal. modal = 1 and non-modal = 0 <p>Example:</p> <pre>SEND_COMMAND Panel, "'@PPM-Popup1;Modal' "</pre> <p>Sets the popup page 'Popup1' to Modal.</p> <pre>SEND_COMMAND Panel, "'@PPM-Popup1;1' "</pre> <p>Sets the popup page 'Popup1' to Modal.</p>
@PPN Activate a specific popup page to launch on either a specified page or the current page.	<p>If the popup page is already on, do not re-draw it. This command works in the same way as the 'Show Popup' command in TPDesign4.</p> <p>Note: <i>If the page name is empty, the current page is used (see example 2).</i></p> <p>Syntax:</p> <pre>" '@PPN-<popup page name>;<page name>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • popup page name = 1 - 50 ASCII characters. Name of the popup page. • page name = 1 - 50 ASCII characters. Name of the page on which the popup is displayed. <p>Example:</p> <pre>SEND_COMMAND Panel, "'@PPN-Popup1;Main' "</pre> <p>Activates 'Popup1' on the 'Main' page.</p> <p>Example 2:</p> <pre>SEND_COMMAND Panel, "'@PPN-Popup1' "</pre> <p>Activates the popup page 'Popup1' on the current page.</p>
@PPT Set a specific popup page to timeout within a specified time.	<p>If timeout is empty, popup page will clear the timeout.</p> <p>Syntax:</p> <pre>" '@PPT-<popup page name>;<timeout>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • popup page name = 1 - 50 ASCII characters. Name of the popup page. • timeout = Timeout duration in 1/10ths of a second. <p>Example:</p> <pre>SEND_COMMAND Panel, "'@PPT-Popup1;30' "</pre> <p>Sets the popup page 'Popup1' to timeout within 3 seconds.</p>
@PPX Close all popups on all pages.	<p>Same as a 'Clear All' command in TPDesign 4.</p> <p>Syntax:</p> <pre>" '@PPX' "</pre> <p>Example:</p> <pre>SEND_COMMAND Panel, "'@PPX' "</pre> <p>Close all popups on all pages.</p>

Page Commands (Cont.)	
@PSE Set the show effect for the specified popup page to the named show effect.	<p>Only 1 coordinate is ever needed for an effect, however the command will specify both. This command sets the location at which the effect will begin at.</p> <p>Syntax:</p> <pre>"@PSE-<popup page name>;<show effect name>"</pre> <p>Variables:</p> <ul style="list-style-type: none"> • popup page name = 1 - 50 ASCII characters. Name of the page on which the popup is displayed. • show effect name = Refers to the popup effect name being used. <p>Example:</p> <pre>SEND_COMMAND Panel, "@PSE-Popup1;Slide from Left"</pre> <p>Sets the Popup1 show effect name to 'Slide from Left'.</p>
@PSP Set the show effect position.	<p>Only 1 coordinate is ever needed for an effect; however, the command will specify both. This command sets the location at which the effect will begin at.</p> <p>Syntax:</p> <pre>"@PSP-<popup page name>;<x coordinate>,<y coordinate>"</pre> <p>Variable:</p> <ul style="list-style-type: none"> • popup page name = 1 - 50 ASCII characters. Name of the page on which the popup is displayed. <p>Example:</p> <pre>SEND_COMMAND Panel, "@PSP-Popup1;100,0"</pre> <p>Sets the Popup1 show effect x-coordinate value to 100 and the y-coordinate value to 0.</p>
@PST Set the show effect time for the specified popup page.	<p>Syntax:</p> <pre>"@PST-<popup page name>;<show effect time>"</pre> <p>Variables:</p> <ul style="list-style-type: none"> • popup page name = Name of the page on which the popup is displayed (1 - 50 ASCII characters). • show effect time = Given in 1/10ths of a second. <p>Example:</p> <pre>SEND_COMMAND Panel, "@PST-Popup1;50"</pre> <p>Sets the Popup1 show effect time to 5 seconds.</p>
PAGE Flip to a specified page.	<p>Flips to a page with a specified page name. If the page is currently active, it will not redraw the page.</p> <p>Syntax:</p> <pre>"PAGE-<page name>"</pre> <p>Variable:</p> <ul style="list-style-type: none"> • page name = 1 - 50 ASCII characters. Name of the page on which the popup is displayed. <p>Example:</p> <pre>SEND_COMMAND Panel, "PAGE-Page1"</pre> <p>Flips to page1.</p>

Page Commands (Cont.)	
PPOF Deactivate a specific popup page on either a specified page or the current page.	<p>If the popup page is part of a group, the whole group is deactivated. This command works in the same way as the 'Hide Popup' command in TPDesign4.</p> <p>Note: <i>If the page name is empty, the current page is used (see example 2).</i></p> <p>Syntax: <code>" 'PPOF-<popup page name>;<page name>' "</code></p> <p>Variables:</p> <ul style="list-style-type: none"> • popup page name = 1 - 50 ASCII characters. Name of the popup page. • page name = 1 - 50 ASCII characters. Name of the page on which the popup is displayed. <p>Example: <code>SEND_COMMAND Panel, " 'PPOF-Popup1;Main' "</code></p> <p>Deactivates the popup page 'Popup1' on the Main page.</p> <p>Example 2: <code>SEND_COMMAND Panel, " 'PPOF-Popup1' "</code></p> <p>Deactivates the popup page 'Popup1' on the current page.</p>
PPOG Toggle a specific popup page on either a specified page or the current page.	<p><i>If the page name is empty, the current page is used (see example 2).</i> Toggling refers to the activating/deactivating (On/Off) of a popup page. This command works in the same way as the 'Toggle Popup' command in TPDesign4.</p> <p>Syntax: <code>" 'PPOG-<popup page name>;<page name>' "</code></p> <p>Variables:</p> <ul style="list-style-type: none"> • popup page name = 1 - 50 ASCII characters. Name of the popup page. • page name = 1 - 50 ASCII characters. Name of the page on which the popup is displayed. <p>Example: <code>SEND_COMMAND Panel, " 'PPOG-Popup1;Main' "</code></p> <p>Toggles the popup page 'Popup1' on the Main page from one state to another (On/Off).</p> <p>Example 2: <code>SEND_COMMAND Panel, " 'PPOG-Popup1' "</code></p> <p>Toggles the popup page 'Popup1' on the current page from one state to another (On/Off).</p>
PPON Activate a specific popup page to launch on either a specified page or the current page.	<p>If the popup page is already On, do not re-draw it. This command works in the same way as the 'Show Popup' command in TPDesign4.</p> <p>Note: <i>If the page name is empty, the current page is used (see example 2).</i></p> <p>Syntax: <code>" 'PPON-<popup page name>;<page name>' "</code></p> <p>Variables:</p> <ul style="list-style-type: none"> • popup page name = 1 - 50 ASCII characters. Name of the popup page. • page name = 1 - 50 ASCII characters. Name of the page on which the popup is displayed. <p>Example: <code>SEND_COMMAND Panel, " 'PPON-Popup1; Main' "</code></p> <p>Activates the popup page 'Popup1' on the Main page.</p> <p>Example 2: <code>SEND_COMMAND Panel, " 'PPON-Popup1' "</code></p> <p>Activates the popup page 'Popup1' on the current page.</p>

Button Commands With Embedded Codes

A device must first be defined in the NetLinx programming language with values for the Device: Port: System (in all programming examples - Panel is used in place of these values and represents all compatible G4 devices).

Button Commands With Embedded Codes	
^BMF	<p>""^BMF-<variable text address range>,<button states range>,<data>""</p> <p>Set any/all button parameters by sending embedded codes and data. See below for embedded codes.</p> <p>Syntax:</p> <pre>SEND_COMMAND <DEV>,"'^BMF-<vt addr range>,<button states range>,<data>'"</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state) • level range = 1 - 600 (level value is 1 - 65535) • data = embedded codes below.
Embedded Codes:	
'%B',<border style>	Set the Border Style name.
'%B',<border 0-27,40,41>	Set the Border Style number.
'%DO<1-5><1-5><1-5><1-5><1-5>'	Set the draw order. Listed bottom to top.
'%F',	Set Font (Font ID#'s generated in TPD4).
'%F'	Set Font (Font ID#'s generated in TPD4).
'%MI<mask image>'	Set the mask image (See ^BIM).
'%T<text>'	Set Text using ASCII characters (empty is clear).
'%P<bitmap>'	Set Picture/Bitmap filename (empty is clear).
'%I',<icon 1-9900, 0-clear>	Set Icon using values of 01 - 9900 (icon numbers are assigned in the TPDesign4 Resource Manager tab - Slots section).
'%I<icon 01-9900, 0-clear>'	Set Icon using values of 01 - 9900 (icon numbers are assigned in the TPDesign4 Resource Manager tab - Slots section).
'%J',<alignment of text 1-9>'	Set text alignment using telephone Keypad layout <ul style="list-style-type: none"> • 1 = left, top • 5 = center, middle • 9 = right, bottom
'%JT<alignment of text 0-9>'	Set text alignment using telephone Keypad layout <ul style="list-style-type: none"> • 1 = left, top • 5 = center, middle • 9 = right, bottom • 0 is absolute followed by '<left>,<top>' outside the border.
'%JB<alignment of bitmap/picture 0-9>'	Set bitmap/picture alignment using telephone Keypad layout <ul style="list-style-type: none"> • 1 = left, top • 5 = center, middle 9 = right, bottom) • 0 is absolute followed by '<left>,<top>' outside the border.

Button Commands With Embedded Codes (Cont.)	
Embedded Codes (Cont.):	
'%JI<alignment of icon 0-9>'	Set icon alignment using telephone Keypad layout <ul style="list-style-type: none"> • 1 = left, top • 5 = center, middle 9 = right, bottom) • 0 is absolute followed by '<left>,<top>' outside the border.
'%CF<on fill color>'	Set Fill Color.
'%CB<on border color>'	Set Border Color.
'%CT<on text color>'	Set Text Color.
'%SW<1 or 0>'	Show/Hide button.
'%ST<style>'	Button Style.
'%SO<sound>'	Set Button Sound
'%EN<1 or 0>'	Enable/Disable button.
'%WW<1 or 0>'	Word wrap on/off.
'%GH<bargraph hi>'	Bargraph upper limit.
'%GL<bargraph low>'	Bargraph lower limit.
'%GN<bargraph slider name>'	Bargraph slider name/Joystick cursor name.
'%GC<bargraph slider color>'	Bargraph slider color/Joystick cursor color.
'%GI<bargraph invert>'	Bargraph invert (0,1,2,3-See ^GIV).
'%GU<bargraph ramp up>'	Bargraph ramp up time 1/10 sec.
'%GD<bargraph ramp down>'	Bargraph ramp down time 1/10 sec.
'%GG<bargraph drag increment>'	Bargraph drag increment relative bargraph (See ^GDI).
'%VI<1 or 0>'	Set Video, Video ON = 1, OFF = 0.
'%OT<feedback type>'	Feedback Type: <ul style="list-style-type: none"> • None • Channel • Invert • On(Always On) • Momentary • Blink
'%SM'	Submit text for text area button.
'%SF<1 or 0>'	Set focus for text area button. Note: Do not assign a variable text address range to set focus to multiple buttons. Only one variable text address can be in focus at a time.
'%OP<0-255>'	Button Opacity: <ul style="list-style-type: none"> • 0=Invisible • 255=Opaque
'%OP#<00-FF>'	Button Opacity: <ul style="list-style-type: none"> • 00=Invisible • FF=Opaque
'%UN<Unicode text>'	Set Unicode text (See ^UNI).
'%LN<0-240>'	Set lines of video removed.
'%EF<text effect name>'	Set text effect.
'%EC<text effect color>'	Set text effect color.

Button Commands With Embedded Codes (Cont.)		
Embedded Codes (Cont.):		
'%ML<max length>'	Set max length of a text area.	Note: This is only for text area input buttons & not for text area Input Mask buttons.
'%MK<input mask>'	Set input mask of a text area.	
'%VL<0-1>'	Logon/logoff computer control.	
'%VN<network name>'	Set the network connection name.	
'%VP<password>'	Set the Network connection password.	
Example:		
SEND_COMMAND D:P:S, "'^BMF-500,1,%B10,%CF Red,%CB Blue,%CT Black,%Ptest.png' "		
Set button OFF state Border, Fill Color, Border Color, Text Color and Bitmap.		

"^" Button Commands



A device must first be defined in the NetLinx programming language with values for the Device: Port: System (in all programming examples - Panel is used in place of these values and represents all compatible G4 devices).

These Button Commands are not case sensitive.

All commands that begin with "^" have the capability of assigning a variable text address range and button state range.

- **Variable text ranges** allow you to target one or more variable text channels in a single command.
- **Button State ranges** allow you to target one or more states of a variable text button state with a single command.
- The "." character is used for 'through' notation, and the "&" character is used for 'And' notation.

"^" Button Commands	
^ANI Run a button animation (in 1/10 second).	<p>Syntax:</p> <pre>"'^ANI-<vt addr range>,<start state>,<end state>,<time>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • start state = Beginning of button state (0= current state). • end state = End of button state. • time = in 1/10 second intervals. <p>Example:</p> <pre>SEND_COMMAND Panel, "'^ANI-500,1,25,100' "</pre> <p>Runs a button animation at text address 500 from state 1 to state 25 for 10 second.</p>

"^" Button Commands (Cont.)	
^APF Add page flip action to a button if it does not already exist.	<p>Syntax:</p> <pre>''^APF-<vt addr range>,<page flip action>,<page name>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> variable text address range = 1 - 4000. page flip action = <ul style="list-style-type: none"> Stan[dardPage] - Flip to standard page Prev[iousPage] - Flip to previous page Show[Popup] - Show Popup page Hide[Popup] - Hide Popup page Togg[lePopup] - Toggle popup state ClearG[roup] - Clear popup page group from all pages ClearP[age] - Clear all popup pages from a page with the specified page name ClearA[ll] - Clear all popup pages from all pages page name = 1 - 50 ASCII characters. <p>Example:</p> <pre>SEND COMMAND Panel, ''^APF-400,Stan,Main Page' "</pre> <p>Assigns button address 400 to a standard page flip with page name 'Main Page'.</p>
^BAT Append non-unicode text.	<p>Syntax:</p> <pre>''^BAT-<vt addr range>,<button states range>,<new text>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> variable text address range = 1 - 4000. button states range = <ul style="list-style-type: none"> 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). new text = 1 - 50 ASCII characters. <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BAT-520,1,Enter City' "</pre> <p>Appends the text 'Enter City' to the button's OFF state.</p>
^BAU Append unicode text.	<p>Same format as ^UNI.</p> <p>Syntax:</p> <pre>''^BAU-<vt addr range>,<button states range>,<unicode text>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> variable text address range = 1 - 4000. button states range = <ul style="list-style-type: none"> 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). unicode text = 1 - 50 ASCII characters. Unicode characters must be entered in Hex format. <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BAU-520,1,00770062' "</pre> <p>Appends Unicode text '00770062' to the button's OFF state.</p>

"^" Button Commands (Cont.)	
^BCB Set the border color to the specified color. <i>Only if the specified border color is not the same as the current color.</i>	<p>Note: Color can be assigned by color name (without spaces), number or R,G,B value (RRGGBB or RRGGBBAA).</p> <p>Syntax: <code>''^BCB-<vt addr range>,<button states range>,<color value>''</code></p> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). • color value = Refer to the <i>RGB Triplets And Names For Basic 88 Colors</i> section on page 88 for more information. <p>Example: <code>SEND_COMMAND Panel, ''^BCB-500.504&510,1,12''</code></p> <p>Sets the Off state border color to 12 (Yellow). Colors can be set by Color Numbers, Color name, RGB alpha colors (RRGGBBAA) and RG & B color values (RRGGBB).</p>
^BCF Set the fill color to the specified color. <i>Only if the specified border color is not the same as the current color.</i>	<p>Note: Color can be assigned by color name (without spaces), number or R,G,B value (RRGGBB or RRGGBBAA).</p> <p>Syntax: <code>''^BCF-<vt addr range>,<button states range>,<color value>''</code></p> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state). • color value = Refer to the <i>RGB Triplets And Names For Basic 88 Colors</i> section on page 88 for more information. <p>Example: <code>SEND_COMMAND Panel, ''^BCF-500.504&510.515,1,12''</code> <code>SEND_COMMAND Panel, ''^BCF-500.504&510.515,1,Yellow''</code> <code>SEND_COMMAND Panel, ''^BCF-500.504&510.515,1,#F4EC0A63''</code> <code>SEND_COMMAND Panel, ''^BCF-500.504&510.515,1,#F4EC0A''</code></p> <p>Sets the Off state fill color by color number.</p> <p>Colors can be set by Color Numbers, Color name, RGB alpha colors (RRGGBBAA) and R G & B color values (RRGGBB).</p>
^BCT Set the text color to the specified color. <i>Only if the specified border color is not the same as the current color.</i>	<p>Note: Color can be assigned by color name (without spaces), number or R,G,B value (RRGGBB or RRGGBBAA).</p> <p>Syntax: <code>''^BCT-<vt addr range>,<button states range>,<color value>''</code></p> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). • color value = Refer to the <i>RGB Triplets And Names For Basic 88 Colors</i> section on page 88 for more information. <p>Example: <code>SEND_COMMAND Panel, ''^BCT-500.504&510,1,12''</code></p> <p>Sets the Off state border color to 12 (Yellow). Colors can be set by Color Numbers, Color name, RGB alpha colors (RRGGBBAA) and R G & B colors values (RRGGBB).</p>

"^" Button Commands (Cont.)	
^BDO Set the button draw order.	<p>Determines what order each layer of the button is drawn.</p> <p>Syntax:</p> <pre>''^BDO-<vt addr range>,<button states range>,<1-5><1-5><1-5><1-5><1-5>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). • layer assignments = <ul style="list-style-type: none"> 1 - Fill Layer 2 - Image Layer 3 - Icon Layer 4 - Text Layer 5 - Border Layer <p>Note: The layer assignments are from bottom to top. The default draw order is 12345.</p> <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BDO-530,1&2,51432' "</pre> <p>Sets the button's variable text 530 ON/OFF state draw order (from bottom to top) to Border, Fill, Text, Icon, and Image.</p> <p>Example 2:</p> <pre>SEND_COMMAND Panel, ''^BDO-1,0,12345' "</pre> <p>Sets all states of a button back to its default drawing order.</p>
^BFB Set the feedback type of the button.	<p>This command only works on General-type buttons.</p> <p>Syntax:</p> <pre>''^BFB-<vt addr range>,<feedback type>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • feedback type = (None, Channel, Invert, On (Always on), Momentary, and Blink). <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BFB-500,Momentary' "</pre> <p>Sets the Feedback type of the button to 'Momentary'.</p>
^BIM Set the input mask for the specified address.	<p>Syntax:</p> <pre>''^BIM-<vt addr range>,<input mask>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • input mask = Refer to the <i>Text Area Input Masking</i> section on page 164 for character types. <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BIM-500,AAAAAAAAA' "</pre> <p>Sets the input mask to ten 'A' characters, that are required, to either a letter or digit (<i>entry is required</i>).</p>

"^" Button Commands (Cont.)	
^BLN Set the number of lines removed equally from the top and bottom of a composite video signal.	<p>The maximum number of lines to remove is 240. A value of 0 will display the incoming video signal unaffected. This command is used to scale non 4x3 video images into non 4x3 video buttons.</p> <p>Syntax:</p> <pre>''^BLN-<vt addr range>,<button states range>,<number of lines>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). • number of lines = 0 - 240. <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BLN-500,55''</pre> <p>Removes 55 lines from the top and 55 lines from the bottom of the video button.</p>
^BMC Button copy command. Copy attributes of the source button to all the destination buttons.	<p>Note that the source is a single button state. Each state must be copied as a separate command.</p> <ul style="list-style-type: none"> • The <codes> section represents what attributes will be copied. • All codes are 2 character pairs that can be separated by comma, space, percent or just ran together. <p>Syntax:</p> <pre>''^BMC-<vt addr range>,<button states range>,<source port>,<source address>,<source state>,<codes>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state). • source port = 1 - 100 • source address = 1 - 4000 • source state = 1 - 256 • codes: <ul style="list-style-type: none"> BM - Picture/Bitmap BR - Border CB - Border Color CF - Fill Color CT - Text Color EC - Text effect color EF - Text effect FT - Font IC - Icon JB - Bitmap alignment JI - Icon alignment JT - Text alignment LN - Lines of video removed OP - Opacity SO - Button Sound TX - Text VI - Video slot ID WW - Word wrap on/off <p>Example 1:</p> <pre>SEND_COMMAND Panel, ''^BMC-425,1,1,500,1,BR''</pre> <p>or</p> <pre>SEND_COMMAND Panel, ''^BMC-425,1,1,500,1,%BR''</pre> <p>Copies the OFF state border of button with a variable text address of 500 onto the OFF state border of button with a variable text address of 425.</p> <p>Example 2:</p> <pre>SEND_COMMAND Panel, ''^BMC-150,1,1,315,1,%BR%FT%TX%BM%IC%CF%CT''</pre>

"^" Button Commands (Cont.)	
^BMC (Cont.)	Copies the OFF state border, font, Text, bitmap, icon, fill color and text color of the button with a variable text address of 315 onto the OFF state border, font, Text, bitmap, icon, fill color, and text color of the button with a variable text address of 150.
^BMF Set any/all button parameters by sending embedded codes and data.	<p>Syntax:</p> <pre>''^BMF-<vt addr range>,<button states range>,<data>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address char array = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state). • level range = 1 - 600 (level value is 1 - 65535). • data: See the <i>Button Commands With Embedded Codes</i> section on page 99.
^BMI Set the button mask image.	<p>Mask image is used to crop a borderless button to a non-square shape. This is typically used with a bitmap.</p> <p>Syntax:</p> <pre>''^BMI-<vt addr range>,<button states range>,<mask image>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state). • mask image = Graphic file used. <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BMI-530,1&2,newMac.png' "</pre> <p>Sets the button with variable text 530 ON/OFF state mask image to 'newmac.png'.</p>
^BML Set the maximum length of the text area button.	<p>If this value is set to zero (0) there is no max length. The maximum length available is 2000.</p> <p>Note: <i>This is only for a Text area input button and not for a Text area input masking button.</i></p> <p>Syntax:</p> <pre>''^BML-<vt addr range>,<max length>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • max length = 2000 (0=no max length). <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BML-500,20' "</pre> <p>Sets the maximum length of the text area input button to 20 characters.</p>
^BMP Assign a picture to those buttons with a defined address range.	<p>Syntax:</p> <pre>''^BMP-<vt addr range>,<button states range>,<name of bitmap/picture>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). • name of bitmap/picture = 1 - 50 ASCII characters. <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BMP-500.504&510.515,1,bitmap.png' "</pre> <p>Sets the OFF state picture for the buttons with variable text ranges of 500-504 & 510-515.</p>

"^" Button Commands (Cont.)	
^BNC Clear current TakeNote annotations.	<p>Syntax:</p> <pre>''^BNC-<vt addr range>,<command value>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • command value = (0= clear, 1= clear all). <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BNC-973,0''</pre> <p>Clears the annotation of the TakeNote button with variable text 973.</p>
^BNN Set the TakeNote network name for the specified Addresses.	<p>Syntax:</p> <pre>''^BNN-<vt addr range>,<network name>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • network name = Use a valid IP Address. <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BNN-973,192.168.169.99''</pre> <p>Sets the TakeNote button network name to 192.168.169.99.</p>
^BNT Set the TakeNote network port for the specified Addresses.	<p>Syntax:</p> <pre>''^BNT-<vt addr range>,<network port>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • network port = 1 - 65535. <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BNT-973,5000''</pre> <p>Sets the TakeNote button network port to 5000.</p>
^BOP Set the button opacity.	<p>The button opacity can be specified as a decimal between 0 - 255, where zero (0) is invisible and 255 is opaque, or as a HEX code, as used in the color commands by preceding the HEX code with the # sign. In this case, #00 becomes invisible and #FF becomes opaque. If the opacity is set to zero (0), this does not make the button inactive, only invisible.</p> <p>Syntax:</p> <pre>''^BOP-<vt addr range>,<button states range>,<button opacity>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). • button opacity = 0 (invisible) - 255 (opaque). <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BOP-500.504&510.515,1,200''</pre> <p>Example 2:</p> <pre>SEND_COMMAND Panel, ''^BOP-500.504&510.515,1,#C8''</pre> <p>Both examples set the opacity of the buttons with the variable text range of 500-504 and 510-515 to 200.</p>

"^" Button Commands (Cont.)	
^BOR Set a border to a specific border style associated with a border value for those buttons with a defined address range. <i>Refer to the Border Styles By Name table on page 90.</i>	<p>Syntax:</p> <pre>''^BOR-<vt addr range>,<border style name or border value>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • border style name = Refer to the Border Styles By Name table on page 90. • border value = 0 - 41. <p>Examples:</p> <pre>SEND_COMMAND Panel, ''^BOR-500.504&510.515,10''</pre> <p>Sets the border by number (#10) to those buttons with the variable text range of 500-504 & 510-515.</p> <pre>SEND_COMMAND Panel, ''^BOR-500.504&510,AMX Elite -M''</pre> <p>Sets the border by name (AMX Elite) to those buttons with the variable text range of 500-504 & 510-515.</p> <p>The border style is available through the TPDesign4 border-style drop-down list. Refer to the <i>Border Styles By Name</i> section on page 90 for more information.</p>
^BOS Set the video window slot ID # to the new Slot ID#.	<p>The new Slot ID # is set only if the specified slot is not the same as the current slot selected.</p> <p>Note: <i>This is an optional parameter and ONLY passes data to the PC.</i></p> <p>Syntax:</p> <pre>''^BOS-<vt addr range>,<button states range>,<slot number>,<touch pass through (optional)>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). • slot number = <ul style="list-style-type: none"> 0 = No Video Fill (Video Off) 1 - 4 = Video Fill (Video On) • touch pass through (optional) - If not present, assumed Touch Pass Through is off. <ul style="list-style-type: none"> 0 = Turn off Touch Pass Through 1 = Turn on Touch Pass Through <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BOS-500,1,0''</pre> <p>Sets the button to display no video fill, and disables Touch Pass Through.</p> <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BOS-500,1,2,1''</pre> <p>Sets the button to display video in Slot 2, and enables Touch Pass Through.</p> <p>Refer to the <i>Setup - Video Settings Page</i> section on page 64 for more information on the slot assignments within a panel.</p>
^BPP Set or clear the protected page flip flag of a button.	<p>A value of zero (0) clears the flag.</p> <p>Syntax:</p> <pre>''^BPP-<vt addr range>,<protected page flip flag value>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • protected page flip flag value range = 0 - 4 (0 clears the flag). <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BPP-500,1''</pre> <p>Sets the button to protected page flip flag 1 (sets it to password 1).</p>

"^" Button Commands (Cont.)	
^BRD Set the border of a button state/states.	<p>This command works only if the specified border is not the same as the current border. The border names are available through the TPDesign4 border-name drop-down list.</p> <p>Syntax:</p> <pre>"'^BRD-<vt addr range>,<button states range>,<border name>'"</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state). • border name = Refer to the Border Styles By Name table on page 90. <p>Example:</p> <pre>SEND_COMMAND Panel, "'^BRD-500.504&510.515,1&2,Quad Line'"</pre> <p>Sets the border by name (Quad Line) to those buttons with the variable text range of 500-504 & 510-515.</p>
^BSF Set the focus to the text area.	<p>Note: Select one button at a time (single variable text address). Do not assign a variable text address range to set focus to multiple buttons. Only one variable text address can be in focus at a time.</p> <p>Syntax:</p> <pre>"'^BSF-<vt addr>,<selection value>'"</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address = 1 - 4000. • selection value = unselect = 0 and select = 1. <p>Example:</p> <pre>SEND_COMMAND Panel, "'^BSF-500,1'"</pre> <p>Sets the focus to the text area of the button.</p>
^BSM Submit text for text area buttons.	<p>This command causes the text areas to send their text as strings to the NetLinx Master.</p> <p>Syntax:</p> <pre>"'^BSM-<vt addr range>'"</pre> <p>Variable:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. <p>Example:</p> <pre>SEND_COMMAND Panel, "'^BSM-500'"</pre> <p>Submits the text of the text area button.</p>
^BSO Set the sound played when a button is pressed.	<p>If the sound name is blank the sound is then cleared. If the sound name is not matched, the button sound is not changed.</p> <p>Syntax:</p> <pre>"'^BSO-<vt addr range>,<button states range>,<sound name>'"</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state). • sound name = (blank - sound cleared, not matched - button sound not changed). <p>Example:</p> <pre>SEND_COMMAND Panel, "'^BSO-500,1&2,music.wav'"</pre> <p>Assigns the sound 'music.wav' to the button Off/On states.</p>

"^" Button Commands (Cont.)	
^BVL Log-On/Log-Off the computer control connection.	Syntax: <pre>''^BVL-<vt addr range>,<connection>''</pre> Variables: <ul style="list-style-type: none"> variable text address range = 1 - 4000. connection = 0 (Log-Off connection) and 1 (Log-On connection). Example: <pre>SEND_COMMAND Panel, ''^BVL-500,0''</pre> Logs-off the computer control connection of the button.
^BVN Set the network name for the specified address.	Syntax: <pre>''^BVN-<vt addr range>,<network name>''</pre> Variables: <ul style="list-style-type: none"> variable text address range = 1 - 4000. network name = 1 - 50 ASCII characters. Example: <pre>SEND_COMMAND Panel, ''^BVN-500,191.191.191.191''</pre> Sets the network name to '191.191.191.191' for the specific control button.
^BVP Set the network password for the specified address.	Syntax: <pre>''^BVP-<vt addr range>,<network password>''</pre> Variables: <ul style="list-style-type: none"> variable text address range = 1 - 4000. network password = 1 - 50 ASCII characters. Example: <pre>SEND_COMMAND Panel, ''^BVP-500,PCLOCK''</pre> Sets the password to PCLOCK for the specific PC control button.
^BVT Set the computer control network port for the specified address.	Syntax: <pre>''^BVT-<vt addr range>,<network port>''</pre> Variables: <ul style="list-style-type: none"> variable text address range = 1 - 4000. network port = 1 - 65535. Example: <pre>SEND_COMMAND Panel, ''^BVT-500,5000''</pre> Sets the network port to 5000.
^BWW Set the button word wrap feature to those buttons with a defined address range.	Note: By default, word-wrap is Off. Syntax: <pre>''^BWW-<vt addr range>,<button states range>,<word wrap>''</pre> Variables: <ul style="list-style-type: none"> variable text address range = 1 - 4000. button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). word wrap = (0=Off and 1=On). Default is Off. Example: <pre>SEND_COMMAND Panel, ''^BWW-500,1,1''</pre> Sets the word wrap on for the button's Off state.

"^" Button Commands (Cont.)	
^CPF Clear all page flips from a button.	<p>Syntax: <code>''^CPF-<vt addr range>' "</code></p> <p>Variable:</p> <ul style="list-style-type: none"> variable text address range = 1 - 4000. <p>Example: <code>SEND_COMMAND Panel, ''^CPF-500' "</code></p> <p>Clears all page flips from the button.</p>
^DPF Delete page flips from button if it already exists.	<p>Syntax: <code>''^DPF-<vt addr range>,<actions>,<page name>' "</code></p> <p>Variables:</p> <ul style="list-style-type: none"> variable text address range = 1 - 4000. actions = <ul style="list-style-type: none"> Stan[dardPage] - Flip to standard page Prev[iousPage] - Flip to previous page Show[Popup] - Show Popup page Hide[Popup] - Hide Popup page Togg[lePopup] - Toggle popup state ClearG[roup] - Clear popup page group from all pages ClearP[age] - Clear all popup pages from a page with the specified page name ClearA[ll] - Clear all popup pages from all pages page name = 1 - 50 ASCII characters. <p>Example: <code>SEND COMMAND Panel, ''^DPF-409,Prev' "</code></p> <p>Deletes the assignment of a button from flipping to a previous page.</p>
^ENA Enable or disable buttons with a set variable text range.	<p>Syntax: <code>''^ENA-<vt addr range>,<command value>' "</code></p> <p>Variables:</p> <ul style="list-style-type: none"> variable text address range = 1 - 4000. command value = (0= disable, 1= enable) <p>Example: <code>SEND_COMMAND Panel, ''^ENA-500.504&510.515,0' "</code></p> <p>Disables button pushes on buttons with variable text range 500-504 & 510-515.</p>
^FON Set a font to a specific Font ID value for those buttons with a defined address range.	<p>Font ID numbers are generated by the TPDesign4 programmers report.</p> <p>Syntax: <code>''^FON-<vt addr range>,<button states range>,' "</code></p> <p>Variables:</p> <ul style="list-style-type: none"> variable text address range = 1 - 4000. button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state). font value = range = 1 - XXX. Refer to the Default Font Styles and ID Numbers table on page 89. <p>Example: <code>SEND_COMMAND Panel, ''^FON-500.504&510.515,1&2,4' "</code></p> <p>Sets the font size to font ID #4 for the on and off states of buttons with the variable text range of 500-504 & 510-515.</p> <p>Note: The Font ID is generated by TPD4 and is located in TPD4 through the Main menu (Panel > Generate Programmer's Report >Text Only Format >Readme.txt).</p>

"^" Button Commands (Cont.)										
^GDI Change the bargraph drag increment.	Syntax: "'^GDI-<vt addr range>,<bargraph drag increment>' " Variables: <ul style="list-style-type: none">• variable text address range = 1 - 4000.• bargraph drag increment = The default drag increment is 256. Example: SEND_COMMAND Panel, "'^GDI-7,128' " Sets the bargraph with variable text 7 to a drag increment of 128.									
^GIV Invert the joystick axis to move the origin to another corner.	Parameters 1, 2, and 3 will cause a bargraph or slider to be inverted regardless of orientation. Their effect will be as described for joysticks. Syntax: "'^GIV-<vt addr range>,<joystick axis to invert>' " Variables: <ul style="list-style-type: none">• variable text address range = 1 - 4000.• joystick axis to invert = 0 - 3. <table border="1"><tr><td>0</td><td></td><td>1</td></tr><tr><td></td><td></td><td></td></tr><tr><td>2</td><td></td><td>3</td></tr></table> <ul style="list-style-type: none">0 = Normal1 = Invert horizontal axis2 = Invert vertical axis3 = Invert both axis locations For a bargraph 1 = Invert , 0 = Non Invert Example: SEND_COMMAND Panel, "'^GIV-500,3' " Inverts the joystick axis origin to the bottom right corner.	0		1				2		3
0		1								
2		3								
^GLH Change the bargraph upper limit.	Syntax: "'^GLH-<vt addr range>,<bargraph hi>' " Variables: <ul style="list-style-type: none">• variable text address range = 1 - 4000.• bargraph limit range = 0 - 65535 (<i>bargraph upper limit range</i>). Example: SEND_COMMAND Panel, "'^GLH-500,1000' " Changes the bargraph upper limit to 1000.									
^GLL Change the bargraph lower limit.	Syntax: "'^GLL-<vt addr range>,<bargraph low>' " Variables: <ul style="list-style-type: none">• variable text address range = 1 - 4000.• bargraph limit range = 0 - 65535 (<i>bargraph lower limit range</i>). Example: SEND_COMMAND Panel, "'^GLL-500,150' " Changes the bargraph lower limit to 150.									

"^" Button Commands (Cont.)	
^GRD Change the bargraph ramp-down time in 1/10th of a second.	<p>Syntax: <code>''^GRD-<vt addr range>,<bargraph ramp down time>''</code></p> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • bargraph ramp down time = in 1/10th of a second intervals. <p>Example: <code>SEND_COMMAND Panel, ''^GRD-500,200''</code></p> <p>Changes the bargraph ramp down time to 20 seconds.</p>
^GRU Change the bargraph ramp-up time in 1/10th of a second.	<p>Syntax: <code>''^GRU-<vt addr range>,<bargraph ramp up time>''</code></p> <p>Variable:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • bargraph ramp up time = in 1/10th of a second intervals. <p>Example: <code>SEND_COMMAND Panel, ''^GRU-500,100''</code></p> <p>Changes the bargraph ramp up time to 10 seconds.</p>
^GSC Change the bargraph slider color or joystick cursor color.	<p>Note: You can also assign the color by color index, name, and R,G,B value (RRGGBB or RRGGBBAA).</p> <p>Syntax: <code>''^GSC-<vt addr range>,<color value>''</code></p> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • color value = Refer to the <i>RGB Triplets And Names For Basic 88 Colors</i> section on page 88 for more information. <p>Example: <code>SEND_COMMAND Panel, ''^GSC-500,12''</code></p> <p>Changes the bargraph or joystick slider color to Yellow.</p>

"^^" Button Commands (Cont.)																															
^GSN Change the bargraph slider name or joystick cursor name.	<p>Slider names and cursor names can be found in the TPDesign4 slider name and cursor drop-down list.</p> <p>Syntax:</p> <pre>"'^GSN-<vt addr range>,<bargraph slider name>'"</pre> <p>Variables:</p> <ul style="list-style-type: none">variable text address range = 1 - 4000.bargraph slider name = see table below. <table border="1"><tr><th colspan="3">Bargraph Slider Names:</th></tr><tr><td>None</td><td>Ball</td><td>Circle -L</td></tr><tr><td>Circle -M</td><td>Circle -S</td><td>Precision</td></tr><tr><td>Rectangle -L</td><td>Rectangle -M</td><td>Rectangle -S</td></tr><tr><td>Windows</td><td>Windows Active</td><td></td></tr><tr><th colspan="3">Joystick Cursor Names:</th></tr><tr><td>None</td><td>Arrow</td><td>Ball</td></tr><tr><td>Circle</td><td>Crosshairs</td><td>Gunsight</td></tr><tr><td>Hand</td><td>Metal</td><td>Spiral</td></tr><tr><td>Target</td><td>View Finder</td><td></td></tr></table> <p>Example:</p> <pre>SEND_COMMAND Panel, "'^GSN-500,Ball'"</pre> <p>Changes the bargraph slider name or the Joystick cursor name to 'Ball'.</p>	Bargraph Slider Names:			None	Ball	Circle -L	Circle -M	Circle -S	Precision	Rectangle -L	Rectangle -M	Rectangle -S	Windows	Windows Active		Joystick Cursor Names:			None	Arrow	Ball	Circle	Crosshairs	Gunsight	Hand	Metal	Spiral	Target	View Finder	
Bargraph Slider Names:																															
None	Ball	Circle -L																													
Circle -M	Circle -S	Precision																													
Rectangle -L	Rectangle -M	Rectangle -S																													
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Hand	Metal	Spiral																													
Target	View Finder																														
^ICO Set the icon to a button.	<p>Syntax:</p> <pre>"'^ICO-<vt addr range>,<button states range>,<icon index>'"</pre> <p>Variable:</p> <p>variable text address range = 1 - 4000.</p> <p>button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state).</p> <p>icon index range = 0 - 9900 (a value of 0 is clear).</p> <p>Example:</p> <pre>SEND_COMMAND Panel, "'^ICO-500.504&510.515,1&2,1'"</pre> <p>Sets the icon for On and Off states for buttons with variable text ranges of 500-504 & 510-515.</p>																														

"^" Button Commands (Cont.)										
^JSB Set bitmap/ picture alignment using a numeric keypad layout for those buttons with a defined address range.	<p>The alignment of 0 is followed by '<left>,<top>'.</p> <p>The left and top coordinates are relative to the upper left corner of the button.</p> <p>Syntax:</p> <pre>"'^JSB-<vt addr range>,<button states range>,<new text alignment>" "</pre> <p>Variables:</p> <ul style="list-style-type: none">• variable text address range = 1 - 4000.• button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).• new text alignment = Value of 1- 9 corresponds to the following locations: <div><div>0</div><table><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>4</td><td>5</td><td>6</td></tr><tr><td>7</td><td>8</td><td>9</td></tr></table><div>Zero can be used for an absolute position</div></div> <p>Example:</p> <pre>SEND_COMMAND Panel, "'^JSB-500.504&510.515,1&2,1'"</pre> <p>Sets the off/on state picture alignment to upper left corner for those buttons with variable text ranges of 500-504 & 510-515.</p>	1	2	3	4	5	6	7	8	9
1	2	3								
4	5	6								
7	8	9								
^JSI Set icon alignment using a numeric keypad layout for those buttons with a defined address range.	<p>The alignment of 0 is followed by '<left>,<top>'.</p> <p>The left and top coordinates are relative to the upper left corner of the button.</p> <p>Syntax:</p> <pre>"'^JSI-<vt addr range>,<button states range>,<new icon alignment>" "</pre> <p>Variables:</p> <ul style="list-style-type: none">• variable text address range = 1 - 4000.• button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state).• new icon alignment = Value of 1 - 9 corresponds to the following locations: <div><div>0</div><table><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>4</td><td>5</td><td>6</td></tr><tr><td>7</td><td>8</td><td>9</td></tr></table><div>Zero can be used for an absolute position</div></div> <p>Example:</p> <pre>SEND_COMMAND Panel, "'^JSI-500.504&510.515,1&2,1'"</pre> <p>Sets the Off/On state icon alignment to upper left corner for those buttons with variable text range of 500-504 & 510-515.</p>	1	2	3	4	5	6	7	8	9
1	2	3								
4	5	6								
7	8	9								

"^" Button Commands (Cont.)										
^JST Set text alignment using a numeric keypad layout for those buttons with a defined address range.	<p>The alignment of 0 is followed by '<left>,<top>'. The left and top coordinates are relative to the upper left corner of the button.</p> <p>Syntax:</p> <pre>"'^JST-<vt addr range>,<button states range>,<new text alignment>"</pre> <p>Variables:</p> <ul style="list-style-type: none">variable text address range = 1 - 4000.button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state).new text alignment = Value of 1 - 9 corresponds to the following locations: <div><div>0</div><table><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>4</td><td>5</td><td>6</td></tr><tr><td>7</td><td>8</td><td>9</td></tr></table><div>Zero can be used for an absolute position</div></div> <p>Example:</p> <pre>SEND_COMMAND Panel, "'^JST-500.504&510.515,1&2,1"</pre> <p>Sets the text alignment to the upper left corner for those buttons with variable text ranges of 500-504 & 510-515.</p>	1	2	3	4	5	6	7	8	9
1	2	3								
4	5	6								
7	8	9								
^MBT Set the Mouse Button mode On for the virtual PC.	<p>Syntax:</p> <pre>"'^MBT-<pass data>"</pre> <p>Variable:</p> <ul style="list-style-type: none">pass data: <div><div>0 = None</div><div>1 = Left</div><div>2 = Right</div><div>3 = Middle</div></div> <p>Example:</p> <pre>SEND COMMAND Panel, "'^MBT-1"</pre> <p>Sets the mouse button mode to 'Left Mouse Click'.</p>									
^MDC Turn On the 'Mouse double-click' feature for the virtual PC.	<p>Syntax:</p> <pre>"'^MDC"</pre> <p>Example:</p> <pre>SEND COMMAND Panel, "'^MDC"</pre> <p>Sets the mouse double-click for use with the virtual PC.</p>									
^SHO Show or hide a button with a set variable text range.	<p>Syntax:</p> <pre>"'^SHO-<vt addr range>,<command value>"</pre> <p>Variables:</p> <ul style="list-style-type: none">variable text address range = 1 - 4000.command value = (0= hide, 1= show). <p>Example:</p> <pre>SEND_COMMAND Panel, "'^SHO-500.504&510.515,0"</pre> <p>Hides buttons with variable text address range 500-504 & 510-515.</p>									

"^" Button Commands (Cont.)	
^SLT Send a command to a given slot. Note: <i>Input Slot command is only available with the VG-Series panels and the TPI-PRO/DVI</i>	<pre>^^SLT-<slot number>,<slot command>''</pre> <p>Send a command to a given slot.</p> <p>These commands are directed at the video card subsystems. Slot commands contain a series of name/value pairs separated by commas.</p> <p>These commands are case insensitive.</p> <p>Syntax:</p> <pre>SEND_COMMAND <DEV>,"'^SLT-<slot number>,<slot command>'"</pre> <p>Variables:</p> <ul style="list-style-type: none"> slot number = 1 - 4(each of these options corresponds to an input position.) slot command = see list below. Input: Set input type for a slot. Input type = Composite (comp1, comp2, comp3), Svideo, Component, RGB, or DVI. Syntax: <pre>input=<input type></pre> <pre>input = <svideo,component,comp1,comp2,comp3,rgb,dvi></pre> Note: <i>DVI input is only available on TPI-PRO-DVI.</i> Example: <pre>SEND_COMMAND TP,"'^SLT-1,input=component'"</pre> Switches input 1 to detect component input signals. <pre>SEND_COMMAND TP,"'^SLT-3,input=rgb'"</pre> Switches input 3 to detect RGB input signals. Resolution: Set input resolution detection to manual or auto. Valid choices are auto, or specify manual resolution. Valid for only Component or RGB input types. Syntax: <pre>resolution=<></pre> <pre>resolution = <auto or <horizontal>x<vertical>@<refresh> <description>></pre> Default = auto. Note: <i>See latest product manual for supported input resolutions for different input types.</i> Example: <pre>SEND_COMMAND TP,"'^SLT-1,resolution=auto'"</pre> Switches input 1 to detect resolution automatically. <pre>SEND_COMMAND TP,"'^SLT-3,resolution=1600x1200@60'"</pre> Switches input 3 to force input timings to an expected 1600x1200@60 input. ?Input: Query the input type for an input. Syntax: <pre>?input</pre> The TPI-PRO/DVI will respond with a DATA COMMAND event from port 1 of the panel. The DATA.TEXT of the event will be in the following format. <pre>^^SLT-<slot number 1-4>,input=<input type>'</pre> Input type will be the current selected input type and will be one of the following: comp1,comp2,comp3,svideo,rgb,component,dvi

"^" Button Commands (Cont.)	
^SLT (Cont.)	<p>Example:</p> <pre>SEND_COMMAND TP, "'^SLT-1,?input'"</pre> <p>If input 1 is set to composite 1, the Command response will be: ^SLT-1,input=comp1 If input 1 is set to composite 2, the Command response will be: ^SLT-1,input=comp2 If input 1 is set to composite 3, the Command response will be: ^SLT-1,input=comp3 If input 1 is set to svideo, the Command response will be: ^SLT-1,input=svideo If input 1 is set to RGB, the Command response will be: ^SLT-1,input=rgb If input 1 is set to component, the Command response will be: ^SLT-1,input=component If input 1 is set to DVI, the Command response will be: ^SLT-1,input=dvi</p> <ul style="list-style-type: none"> • ?Resolution: Query the detected resolution for an input. <p>Syntax:</p> <pre>?resolution</pre> <p>Queries input 1 for the current input type. Panel will respond with a DATA Command event.</p> <p>The TPI-PRO/DVI will respond with a DATA COMMAND event from port 1 of the panel. The DATA.TEXT of the event will be in the following format.</p> <pre>'^SLT-<slot number 1-4>,resolution=<detected resolution string>'</pre> <p>Example:</p> <pre>SEND_COMMAND TP, "'^SLT-1,?resolution'"</pre> <p>Queries input 1 for the current input resolution. Panel will respond with a DATA Command event.</p> <p>Command data will vary depending on input type and detected resolution.</p> <ul style="list-style-type: none"> • For composite and svideo: NTSC, PAL, ..., No Signal Detected • For component, RGB, and DVI: <Horz>x<Vert>@<Ref> <desc>, • No Signal Detected, or Manual:<Horz>x<Vert>@<Ref> <desc>
^TEC Set the text effect color for the specified addresses/states to the specified color.	<p>The Text Effect is specified by name and can be found in TPD4.</p> <p>You can also assign the color by name or RGB value (RRGGBB or RRGGBBAA).</p> <p>Syntax:</p> <pre>''^TEC-<vt addr range>,<button states range>,<color value>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state). • color value = Refer to the <i>RGB Triplets And Names For Basic 88 Colors</i> section on page 88 for more information. <p>Example:</p> <pre>SEND_COMMAND Panel, "'^TEC-500.504&510.515,1&2,12'"</pre> <p>Sets the text effect color to Very Light Yellow on buttons with variable text 500-504 and 510-515.</p>

"^" Button Commands (Cont.)	
^TEF Set the text effect.	<p>The Text Effect is specified by name and can be found in TPD4.</p> <p>Syntax:</p> <pre>''^TEF-<vt addr range>,<button states range>,<text effect name>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> variable text address range = 1 - 4000. button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state). text effect name = Refer to the <i>Text Effects Names</i> section on page 91 for a listing of text effect names. <p>Example:</p> <pre>SEND_COMMAND Panel, ''^TEF-500.504&510.515,1&2,Soft Drop Shadow 3''</pre> <p>Sets the text effect to Soft Drop Shadow 3 for the button with variable text range 500-504 and 510-515.</p>
^TXT Assign a text string to those buttons with a defined address range.	<p>Sets Non-Unicode text.</p> <p>Syntax:</p> <pre>''^TXT-<vt addr range>,<button states range>,<new text>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> variable text address range = 1 - 4000. button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state). new text = 1 - 50 ASCII characters. <p>Example:</p> <pre>SEND_COMMAND Panel, ''^TXT-500.504&510.515,1&2,Test Only''</pre> <p>Sets the On and Off state text for buttons with the variable text ranges of 500-504 and 510-515.</p>
^UNI Set Unicode text.	<p>For the ^UNI command (%UN and ^BMF command), the Unicode text is sent as ASCII-HEX nibbles.</p> <p>Syntax:</p> <pre>''^UNI-<vt addr range>,<button states range>,<unicode text>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> variable text address range = 1 - 4000. button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state). unicode text = Unicode HEX value. <p>Example:</p> <pre>SEND_COMMAND Panel, ''^UNI-500,1,0041''</pre> <p>Sets the button's unicode character to 'A'.</p> <p>Note: To send the variable text 'A' in unicode to all states of the variable text button 1, (for which the character code is 0041 Hex), send the following command:</p> <pre>SEND_COMMAND TP, ''^UNI-1,0,0041''</pre> <p>Note: Unicode is always represented in a HEX value. TPD4 generates (through the Text Enter Box dialog box) unicode HEX values. Refer to the TPDesign4 Instruction Manual for more information.</p>

Button Query Commands

Button Query commands reply back with a custom event. There will be one custom event for each button/state combination. Each query is assigned a unique custom event type.

The following example is for debug purposes only:

```
NetLinx Example: CUSTOM_EVENT[device, Address, Custom event type]

DEFINE_EVENT

CUSTOM_EVENT[TP,529,1001]      // Text
CUSTOM_EVENT[TP,529,1002]      // Bitmap
CUSTOM_EVENT[TP,529,1003]      // Icon
CUSTOM_EVENT[TP,529,1004]      // Text Justification
CUSTOM_EVENT[TP,529,1005]      // Bitmap Justification
CUSTOM_EVENT[TP,529,1006]      // Icon Justification
CUSTOM_EVENT[TP,529,1007]      // Font
CUSTOM_EVENT[TP,529,1008]      // Text Effect Name
CUSTOM_EVENT[TP,529,1009]      // Text Effect Color
CUSTOM_EVENT[TP,529,1010]      // Word Wrap
CUSTOM_EVENT[TP,529,1011]      // ON state Border Color
CUSTOM_EVENT[TP,529,1012]      // ON state Fill Color
CUSTOM_EVENT[TP,529,1013]      // ON state Text Color
CUSTOM_EVENT[TP,529,1014]      // Border Name
CUSTOM_EVENT[TP,529,1015]      // Opacity

{
    Send_String 0,"'ButtonGet Id=',ITOA(CUSTOM.ID),' Type=',ITOA(CUSTOM.TYPE)"
    Send_String 0,"'Flag   =',ITOA(CUSTOM.FLAG)"
    Send_String 0,"'VALUE1 =',ITOA(CUSTOM.VALUE1)"
    Send_String 0,"'VALUE2 =',ITOA(CUSTOM.VALUE2)"
    Send_String 0,"'VALUE3 =',ITOA(CUSTOM.VALUE3)"
    Send_String 0,"'TEXT   =',CUSTOM.TEXT"
    Send_String 0,"'TEXT LENGTH =',ITOA(LENGTH_STRING(CUSTOM.TEXT))"
}
```

All custom events have the following 6 fields:

Custom Event Fields	
• Field:	Description
• Uint Flag:	0 means text is a standard string, 1 means Unicode encoded string
• long value1:	button state number
• long value2:	actual length of string (this is not encoded size)
• long value3:	index of first character (usually 1 or same as optional index)
• string text:	the text from the button
• text length (string encode):	button text length

These fields are populated differently for each query command. The text length (String Encode) field is not used in any command.

Button Query Commands	
?BCB Get the current border color.	<p>Syntax:</p> <pre>"'?BCB-<vt addr range>,<button states range>'"</pre> <p>Variables:</p> <ul style="list-style-type: none"> variable text address range = 1 - 4000. button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). custom event type 1011: <ul style="list-style-type: none"> Flag - zero Value1 - Button state number Value2 - Actual length of string (should be 9) Value3 - Zero Text - Hex encoded color value (ex: #000000FF) Text length - Color name length (should be 9) <p>Example:</p> <pre>SEND COMMAND Panel, "'?BCB-529,1'"</pre> <p>Gets the button 'OFF state' border color. information.</p> <p>The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1011 Flag = 0 VALUE1 = 1 VALUE2 = 9 VALUE3 = 0 TEXT = #222222FF TEXT LENGTH = 9</pre>
?BCF Get the current fill color.	<p>Syntax:</p> <pre>"'?BCF-<vt addr range>,<button states range>'"</pre> <p>Variables:</p> <ul style="list-style-type: none"> variable text address range = 1 - 4000. button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). custom event type 1012: <ul style="list-style-type: none"> Flag - Zero Value1 - Button state number Value2 - Actual length of string (should be 9) Value3 - Zero Text - Hex encoded color value (ex: #000000FF) Text length - Color name length (should be 9) <p>Example:</p> <pre>SEND COMMAND Panel, "'?BCF-529,1'"</pre> <p>Gets the button 'OFF state' fill color information.</p> <p>The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1012 Flag = 0 VALUE1 = 1 VALUE2 = 9 VALUE3 = 0 TEXT = #FF8000FF TEXT LENGTH = 9</pre>

Button Query Commands (Cont.)	
?BCT Get the current text color.	<p>Syntax:</p> <pre>''?BCT-<vt addr range>,<button states range>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). • custom event type 1013: <ul style="list-style-type: none"> Flag - Zero Value1 - Button state number Value2 - Actual length of string (should be 9) Value3 - Zero Text - Hex encoded color value (ex: #000000FF) Text length - Color name length (should be 9) <p>Example:</p> <pre>SEND COMMAND Panel, ''?BCT-529,1' "</pre> <p>Gets the button 'OFF state' text color information.</p> <p>The result sent to Master would be:</p> <pre>ButtonGet Id = 529 Type = 1013 Flag = 0 VALUE1 = 1 VALUE2 = 9 VALUE3 = 0 TEXT = #FFFFFFEF TEXT LENGTH = 9</pre>
?BMP Get the current bitmap name.	<p>Syntax:</p> <pre>''?BMP-<vt addr range>,<button states range>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). • custom event type 1002: <ul style="list-style-type: none"> Flag - Zero Value1 - Button state number Value2 - Actual length of string Value3 - Zero Text - String that represents the bitmap name Text length - Bitmap name text length (should be 9) <p>Example:</p> <pre>SEND COMMAND Panel, ''?BMP-529,1' "</pre> <p>Gets the button 'OFF state' bitmap information.</p> <p>The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1002 Flag = 0 VALUE1 = 1 VALUE2 = 9 VALUE3 = 0 TEXT = Buggs.png TEXT LENGTH = 9</pre>

Button Query Commands (Cont.)	
?BOP Get the overall button opacity.	<p>Syntax:</p> <pre>''?BOP-<vt addr range>,<button states range>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). • custom event type 1015: <ul style="list-style-type: none"> Flag - Zero Value1 - Button state number Value2 - Opacity Value3 - Zero Text - Blank Text length - Zero <p>Example:</p> <pre>SEND COMMAND Panel, ''?BOP-529,1''</pre> <p>Gets the button 'OFF state' opacity information.</p> <p>The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1015 Flag = 0 VALUE1 = 1 VALUE2 = 200 VALUE3 = 0 TEXT = TEXT LENGTH = 0</pre>
?BRD Get the current border name.	<p>Syntax:</p> <pre>''?BRD-<vt addr range>,<button states range>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). • custom event type 1014: <ul style="list-style-type: none"> Flag - Zero Value1 - Button state number Value2 - Actual length of string Value3 - Zero Text - String that represents border name Text length - Border name length <p>Example:</p> <pre>SEND COMMAND Panel, ''?BRD-529,1''</pre> <p>Gets the button 'OFF state' border information.</p> <p>The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1014 Flag = 0 VALUE1 = 1 VALUE2 = 22 VALUE3 = 0 TEXT = Double Bevel Raised -L TEXT LENGTH = 22</pre>

Button Query Commands (Cont.)	
?BWW Get the current word wrap flag status.	<p>Syntax:</p> <pre>''?BWW-<vt addr range>,<button states range>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). • custom event type 1010: <ul style="list-style-type: none"> Flag - Zero Value1 - Button state number Value2 - 0 = no word wrap, 1 = word wrap Value3 - Zero Text - Blank Text length - Zero <p>Example:</p> <pre>SEND COMMAND Panel, ''?BWW-529,1' "</pre> <p>Gets the button 'OFF state' word wrap flag status information.</p> <p>The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1010 Flag = 0 VALUE1 = 1 VALUE2 = 1 VALUE3 = 0 TEXT = TEXT LENGTH = 0</pre>
?FON Get the current font index.	<p>Syntax:</p> <pre>''?FON-<vt addr range>,<button states range>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). • custom event type 1007: <ul style="list-style-type: none"> Flag - Zero Value1 - Button state number Value2 - Font index Value3 - Zero Text - Blank Text length - Zero <p>Example:</p> <pre>SEND COMMAND Panel, ''?FON-529,1' "</pre> <p>Gets the button 'OFF state' font type index information.</p> <p>The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1007 Flag = 0 VALUE1 = 1 VALUE2 = 72 VALUE3 = 0 TEXT = TEXT LENGTH = 0</pre>

Button Query Commands (Cont.)	
?ICO Get the current icon index.	<p>Syntax:</p> <pre>''?ICO-<vt addr range>,<button states range>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). • custom event type 1003: <ul style="list-style-type: none"> Flag - Zero Value1 - Button state number Value2 - Icon Index Value3 - Zero Text - Blank Text length - Zero <p>Example:</p> <pre>SEND COMMAND Panel, ''?ICO-529,1&2''</pre> <p>Gets the button 'OFF state' icon index information.</p> <p>The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1003 Flag = 0 VALUE1 = 2 VALUE2 = 12 VALUE3 = 0 TEXT = TEXT LENGTH = 0</pre>
?JSB Get the current bitmap justification.	<p>Syntax:</p> <pre>''?JSB-<vt addr range>,<button states range>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). • custom event type 1005: <ul style="list-style-type: none"> Flag - Zero Value1 - Button state number Value2 - 1 - 9 justify Value3 - Zero Text - Blank Text length - Zero <p>Example:</p> <pre>SEND COMMAND Panel, ''?JSB-529,1''</pre> <p>Gets the button 'OFF state' bitmap justification information.</p> <p>The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1005 Flag = 0 VALUE1 = 1 VALUE2 = 5 VALUE3 = 0 TEXT = TEXT LENGTH = 0</pre>

Button Query Commands (Cont.)	
?JSI Get the current icon justification.	<p>Syntax:</p> <pre>''?JSI-<vt addr range>,<button states range>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). • custom event type 1006: <ul style="list-style-type: none"> Flag - Zero Value1 - Button state number Value2 - 1 - 9 justify Value3 - Zero Text - Blank Text length - Zero <p>Example:</p> <pre>SEND COMMAND Panel, ''?JSI-529,1''</pre> <p>Gets the button 'OFF state' icon justification information.</p> <p>The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1006 Flag = 0 VALUE1 = 1 VALUE2 = 6 VALUE3 = 0 TEXT = TEXT LENGTH = 0</pre>
?JST Get the current text justification.	<p>Syntax:</p> <pre>''?JST-<vt addr range>,<button states range>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). • custom event type 1004: <ul style="list-style-type: none"> Flag - Zero Value1 - Button state number Value2 - 1 - 9 justify Value3 - Zero Text - Blank Text length - Zero <p>Example:</p> <pre>SEND COMMAND Panel, ''?JST-529,1''</pre> <p>Gets the button 'OFF state' text justification information.</p> <p>The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1004 Flag = 0 VALUE1 = 1 VALUE2 = 1 VALUE3 = 0 TEXT = TEXT LENGTH = 0</pre>

Button Query Commands (Cont.)	
?TEC Get the current text effect color.	<p>Syntax:</p> <pre>''?TEC-<vt addr range>,<button states range>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state). • custom event type 1009: <ul style="list-style-type: none"> Flag - Zero Value1 - Button state number Value2 - Actual length of string (should be 9) Value3 - Zero Text - Hex encoded color value (ex: #000000FF) Text length - Color name length (should be 9) <p>Example:</p> <pre>SEND COMMAND Panel, ''?TEC-529,1' "</pre> <p>Gets the button 'OFF state' text effect color information.</p> <p>The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1009 Flag = 0 VALUE1 = 1 VALUE2 = 9 VALUE3 = 0 TEXT = #5088F2AE TEXT LENGTH = 9</pre>
?TEF Get the current text effect name.	<p>Syntax:</p> <pre>''?TEF-<vt addr range>,<button states range>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state). • custom event type 1008: <ul style="list-style-type: none"> Flag - Zero Value1 - Button state number Value2 - Actual length of string Value3 - Zero Text - String that represents the text effect name Text length - Text effect name length <p>Example:</p> <pre>SEND COMMAND Panel, ''?TEF-529,1' "</pre> <p>Gets the button 'OFF state' text effect name information.</p> <p>The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1008 Flag = 0 VALUE1 = 1 VALUE2 = 18 VALUE3 = 0 TEXT = Hard Drop Shadow 3 TEXT LENGTH = 18</pre>

Button Query Commands (Cont.)	
?TXT Get the current text information.	<p>Syntax: <code>''?TXT-<vt addr range>,<button states range>,<optional index>''</code></p> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons 1 = Off state and 2 = On state). • optional index = This is used if a string was too long to get back in one command. The reply will start at this index. • custom event type 1001: <ul style="list-style-type: none"> Flag - Zero Value1 - Button state number Value2 - Actual length of string Value3 - Index Text - Text from the button Text length - Button text length <p>Example:</p> <pre>SEND COMMAND Panel, ''?TXT-529,1''</pre> <p>Gets the button 'OFF state' text information.</p> <p>The result sent to the Master would be:</p> <pre>ButtonGet Id = 529 Type = 1001 Flag = 0 VALUE1 = 1 VALUE2 = 14 VALUE3 = 1 TEXT = This is a test TEXT LENGTH = 14</pre>

Panel Run Time Commands



A device must first be defined in the NetLinx programming language with values for the Device: Port: System (in all programming examples - Panel is used in place of these values and represents all compatible G4 devices).

Serial Commands are used in the AxxessX Terminal Emulator mode. These commands are not case sensitive.

Panel Runtime Operation Commands	
ABEEP Output a single beep even if beep is Off.	Syntax: " 'ABEEP' " Example: SEND COMMAND Panel, " 'ABEEP' " Outputs a beep of duration 1 beep even if beep is Off.
ADBEEP Output a double beep even if beep is Off.	Syntax: " 'ADBEEP' " Example: SEND COMMAND Panel, " 'ADBEEP' " Outputs a double beep even if beep is Off.
@AKB Pop up the keyboard icon and initialize the text string to that specified.	Keyboard string is set to null on power up and is stored until power is lost. The Prompt Text is optional. Syntax: " '@AKB-<initial text>;<prompt text>' " Variables: initial text = 1 - 50 ASCII characters. prompt text = 1 - 50 ASCII characters. Example: SEND COMMAND Panel, " '@AKB-Texas;Enter State' " Pops up the Keyboard and initializes the text string 'Texas' with prompt text 'Enter State'.
AKEYB Pop up the keyboard icon and initializes the text string to that specified.	Keyboard string is set to null on power up and is stored until power is lost. Syntax: " 'AKEYB-<initial text>' " Variables: initial text = 1 - 50 ASCII characters. Example: SEND COMMAND Panel, " 'AKEYB-This is a Test' " Pops up the Keyboard and initializes the text string 'This is a Test'.
AKEYP Pop up the keypad icon and initialize the text string to that specified.	The keypad string is set to null on power up and is stored until power is lost. Syntax: " 'AKEYP-<number string>' " Variables: number string = 0 - 9999. Example: SEND COMMAND Panel, " 'AKEP-12345' " Pops up the Keypad and initializes the text string '12345'.

Panel Runtime Operation Commands (Cont.)	
AKEYR Remove the Keyboard/Keypad.	Remove keyboard or keypad that was displayed using 'AKEYB', 'AKEYP', 'PKEYP', '@AKB, @AKP, @PKP, @EKP, or @TKP commands. Syntax: " 'AKEYR' " Example: SEND COMMAND Panel, " 'AKEYR' " Removes the Keyboard/Keypad.
@AKP Pop up the keypad icon and initialize the text string to that specified.	Keypad string is set to null on power up and is stored until power is lost. The Prompt Text is optional. Syntax: " '@AKP-<initial text>;<prompt text>' " Variables: initial text = 1 - 50 ASCII characters. prompt text = 1 - 50 ASCII characters. Example: SEND COMMAND Panel, " '@AKP-12345678;ENTER PASSWORD' " Pops up the Keypad and initializes the text string '12345678' with prompt text 'ENTER PASSWORD'.
@AKR Remove the Keyboard/Keypad.	Remove keyboard or keypad that was displayed using 'AKEYB', 'AKEYP', 'PKEYP', '@AKB, @AKP, @PKP, @EKP, or @TKP commands. Syntax: " '@AKR' " Example: SEND COMMAND Panel, " '@AKR' " Removes the Keyboard/Keypad.
BEEP Output a beep.	Syntax: " 'BEEP' " Example: SEND COMMAND Panel, " 'BEEP' " Outputs a beep.
BRIT Set the panel brightness.	Syntax: SEND_COMMAND <DEV>, " 'BRIT-<brightness level>' " Variables: • brightness level = 0 - 100. Example: SEND_COMMAND Panel, " 'BRIT-50' " Sets the brightness level to 50.
@BRT Set the panel brightness.	Syntax: SEND_COMMAND <DEV>, " 'BRIT-<brightness level>' " Variables: • brightness level = 0 - 100. Example: SEND_COMMAND Panel, " 'BRIT-70' " Sets the brightness level to 70.

Panel Runtime Operation Commands (Cont.)																																																																																																																																																
DBEEP Output a double beep.	Syntax: " 'DBEEP' " Example: SEND COMMAND Panel, " 'DBEEP' " Outputs a double beep.																																																																																																																																															
@EKP Extend the Keypad.	Pops up the keypad icon and initializes the text string to that specified. The Prompt Text is optional. Syntax: " '@EKP-<initial text>;<prompt text>' " Variables: initial text = 1 - 50 ASCII characters. prompt text = 1 - 50 ASCII characters. Example: SEND COMMAND Panel, " '@EKP-33333333;Enter Password' " Pops up the Keypad and initializes the text string '33333333' with prompt text 'Enter Password'.																																																																																																																																															
ORES Changes the output resolution at run time.	<p>The description is optional and is used for certain resolutions.</p> <p>Standard output modes for the TPI-PRO/DVI are:</p> <table><thead><tr><th>Horizontal</th><th>Vertical</th><th>Refresh</th><th>Description</th><th>Command</th></tr></thead><tbody><tr><td>640</td><td>480</td><td>60</td><td></td><td>'ORES-640x480@60'</td></tr><tr><td>640</td><td>480</td><td>72</td><td></td><td>'ORES-640x480@72'</td></tr><tr><td>640</td><td>480</td><td>75</td><td></td><td>'ORES-640x480@75'</td></tr><tr><td>800</td><td>600</td><td>60</td><td></td><td>'ORES-800x600@60'</td></tr><tr><td>800</td><td>600</td><td>72</td><td></td><td>'ORES-800x600@72'</td></tr><tr><td>800</td><td>600</td><td>75</td><td></td><td>'ORES-800x600@75'</td></tr><tr><td>848</td><td>480</td><td>60</td><td></td><td>'ORES-848x480@60'</td></tr><tr><td>1024</td><td>768</td><td>60</td><td></td><td>'ORES-1024x768@60'</td></tr><tr><td>1024</td><td>768</td><td>70</td><td></td><td>'ORES-1024x768@70'</td></tr><tr><td>1024</td><td>768</td><td>75</td><td></td><td>'ORES-1024x768@75'</td></tr><tr><td>1280</td><td>720</td><td>60</td><td>VESA</td><td>'ORES-1280x720@60 VESA'</td></tr><tr><td>1280</td><td>768</td><td>60</td><td></td><td>'ORES-1280x768@60'</td></tr><tr><td>1280</td><td>1024</td><td>60</td><td>(default)</td><td>'ORES-1280x1024@60'</td></tr><tr><td>1280</td><td>1024</td><td>75</td><td></td><td>'ORES-1280x1024@75'</td></tr><tr><td>1360</td><td>768</td><td>60</td><td></td><td>'ORES-1360x768@60'</td></tr><tr><td>1440</td><td>900</td><td>60</td><td></td><td>'ORES-1440x900@60'</td></tr><tr><td>1680</td><td>1050</td><td>60</td><td></td><td>'ORES-1680x1050@60'</td></tr><tr><td>1600</td><td>1200</td><td>60</td><td></td><td>'ORES-1600x1200@60'</td></tr><tr><td>1920</td><td>1080</td><td>60</td><td>VESA rb</td><td>'ORES-1920x1080@60 VESA rb'</td></tr><tr><td>1920</td><td>1200</td><td>60</td><td>VESA rb</td><td>'ORES-1920x1200@60 VESA rb'</td></tr></tbody></table> <p>Additional output modes for TPI-PRO-DVI are:</p> <table><thead><tr><th>Horizontal</th><th>Vertical</th><th>Refresh</th><th>Description</th><th>Command</th></tr></thead><tbody><tr><td>720</td><td>480</td><td>60</td><td>CEA</td><td>'ORES-720x480@60 CEA'</td></tr><tr><td>1280</td><td>720</td><td>60</td><td>CEA</td><td>'ORES-1280x720@60 CEA'</td></tr><tr><td>1920</td><td>1080</td><td>60</td><td>CEA</td><td>'ORES-1920x1080@60 CEA'</td></tr><tr><td>720</td><td>576</td><td>50</td><td>CEA</td><td>'ORES-720x576@50 CEA'</td></tr><tr><td>1280</td><td>720</td><td>50</td><td>CEA</td><td>'ORES-1280x720@50 CEA'</td></tr><tr><td>1920</td><td>1080</td><td>50</td><td>CEA</td><td>'ORES-1920x1080@50 CEA'</td></tr></tbody></table> <p>Additional output modes can be sent, and if a standard does not match, then VESA CVT timings will be calculated for the output timings.</p> <p>The CVT timings are standard blanking if the pixel clock is within allowable limits, otherwise CVT reduced blanking (rb) timings are employed.</p>				Horizontal	Vertical	Refresh	Description	Command	640	480	60		'ORES-640x480@60'	640	480	72		'ORES-640x480@72'	640	480	75		'ORES-640x480@75'	800	600	60		'ORES-800x600@60'	800	600	72		'ORES-800x600@72'	800	600	75		'ORES-800x600@75'	848	480	60		'ORES-848x480@60'	1024	768	60		'ORES-1024x768@60'	1024	768	70		'ORES-1024x768@70'	1024	768	75		'ORES-1024x768@75'	1280	720	60	VESA	'ORES-1280x720@60 VESA'	1280	768	60		'ORES-1280x768@60'	1280	1024	60	(default)	'ORES-1280x1024@60'	1280	1024	75		'ORES-1280x1024@75'	1360	768	60		'ORES-1360x768@60'	1440	900	60		'ORES-1440x900@60'	1680	1050	60		'ORES-1680x1050@60'	1600	1200	60		'ORES-1600x1200@60'	1920	1080	60	VESA rb	'ORES-1920x1080@60 VESA rb'	1920	1200	60	VESA rb	'ORES-1920x1200@60 VESA rb'	Horizontal	Vertical	Refresh	Description	Command	720	480	60	CEA	'ORES-720x480@60 CEA'	1280	720	60	CEA	'ORES-1280x720@60 CEA'	1920	1080	60	CEA	'ORES-1920x1080@60 CEA'	720	576	50	CEA	'ORES-720x576@50 CEA'	1280	720	50	CEA	'ORES-1280x720@50 CEA'	1920	1080	50	CEA	'ORES-1920x1080@50 CEA'
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Panel Runtime Operation Commands (Cont.)	
ORES (Cont.)	<p>Example:</p> <pre>SEND_COMMAND Panel, "'ORES-1920x1200@60 VESA rb'"</pre> <p>The output resolution will be changed to 1920x1200@60 using VESA reduced blanking timings.</p> <pre>SEND_COMMAND Panel, "'ORES-1280x1024@60'"</pre> <p>The output resolution will be changed to 1280x1024@60.</p> <pre>SEND_COMMAND Panel, "'ORES-1920x1080@50 CEA'"</pre> <p>The output resolution will be changed to 1920x1080@50 using CEA timings.</p> <pre>SEND_COMMAND Panel, "'ORES-1400x1050@60'"</pre> <p>The output resolution will be changed to 1400x1050@60 using calculated VESA CVT timings.</p>
PKEYP Present a private keypad.	<p>Pops up the keypad icon and initializes the text string to that specified. Keypad displays a '*' instead of the numbers typed. The Prompt Text is optional.</p> <p>Syntax:</p> <pre>"'PKEYP-<initial text>'"</pre> <p>Variables:</p> <pre>initial text = 1 - 50 ASCII characters.</pre> <p>Example:</p> <pre>SEND COMMAND Panel, "'PKEYP-123456789'"</pre> <p>Pops up the Keypad and initializes the text string '123456789' in '*'.</p>
@PKP Present a private keypad.	<p>Pops up the keypad icon and initializes the text string to that specified. Keypad displays a '*' instead of the numbers typed. The Prompt Text is optional.</p> <p>Syntax:</p> <pre>"'@PKP-<initial text>;<prompt text>'"</pre> <p>Variables:</p> <pre>initial text = 1 - 50 ASCII characters.</pre> <pre>prompt text = 1 - 50 ASCII characters.</pre> <p>Example:</p> <pre>SEND COMMAND Panel, "'@PKP-1234567;ENTER PASSWORD'"</pre> <p>Pops up the Keypad and initializes the text string 'ENTER PASSWORD' in '*'.</p>
SETUP Send panel to Setup page.	<p>Syntax:</p> <pre>"'SETUP'"</pre> <p>Example:</p> <pre>SEND COMMAND Panel, "'SETUP'"</pre> <p>Sends the panel to the Setup Page.</p>
SLEEP Force the panel into screen saver mode.	<p>Syntax:</p> <pre>"'SLEEP'"</pre> <p>Example:</p> <pre>SEND COMMAND Panel, "'SLEEP'"</pre> <p>Forces the panel into screen saver mode.</p>

Panel Runtime Operation Commands (Cont.)	
@SOU Play a sound file.	Syntax: <pre>" '@SOU-<sound name>' "</pre> Variables: sound name = Name of the sound file. Supported sound file formats are: WAV & MP3. Example: <pre>SEND COMMAND Panel, "'@SOU-Music.wav' "</pre> Plays the 'Music.wav' file.
@TKP Present a telephone keypad.	Pops up the keypad icon and initializes the text string to that specified. The Prompt Text is optional. Syntax: <pre>" '@TKP-<initial text>;<prompt text>' "</pre> Variables: initial text = 1 - 50 ASCII characters. prompt text = 1 - 50 ASCII characters. Example: <pre>SEND COMMAND Panel, "'@TKP-999.222.1211;Enter Phone Number' "</pre> Pops-up the Keypad and initializes the text string '999.222.1211' with prompt text 'Enter Phone Number'.
TPAGEOFF Turn off page tracking.	Syntax: <pre>" 'TPAGEOFF' "</pre> Example: <pre>SEND COMMAND Panel, "'TPAGEOFF' "</pre> Turns off page tracking.
TPAGEON Turn on page tracking.	This command turns on page tracking, whereby when the page or popups change, a string is sent to the Master. This string may be captured with a CREATE_BUFFER command for one panel and sent directly to another panel. Syntax: <pre>" 'TPAGEON' "</pre> Example: <pre>SEND COMMAND Panel, "'TPAGEON' "</pre> Turns on page tracking.
@VKB Popup the virtual keyboard.	Syntax: <pre>" '@VKB' "</pre> Example: <pre>SEND COMMAND Panel, "'@VKB' "</pre> Pops-up the virtual keyboard.

Panel Runtime Operation Commands (Cont.)	
^TPO Selects which of the 2 outputs display G4 graphics.	<p>Syntax:</p> <pre>SEND_COMMAND <DEV>,"'^TPO-<0-3>' "</pre> <ul style="list-style-type: none"> • 0 = None (should not be used in a typical installation) • 1 = G4 Graphics on output 1 only • 2 = G4 Graphics on output 2 only • 3 = G4 Graphics on both outputs 1 and 2 (default) <p>Example:</p> <pre>SEND_COMMAND Panel,"'^TPO-3' "</pre> <p>Sends G4 graphics to outputs 1 and 2.</p> <p>Note: Any G4 graphics that appear over a Video Window when the ^TPO command is used to turn off G4 graphics on an output may leave a "hole" in the video display if the button opacity is too high.</p> <p>The upper limit of opacity for any graphic over a video window is panel design dependant. The more layers of graphics over a video window, the lower the opacity needs to be set for the layers.</p> <p>A single layer of graphics has show that an opacity value of 250 or lower is sufficient to correct the problem.</p>
^TPS Selects Serial Touch data pass through.	<p>Syntax:</p> <pre>SEND_COMMAND <DEV>,"'^TPS-<pass data>' "</pre> <p>Variables (pass data):</p> <ul style="list-style-type: none"> • 0 = Disables the touch pass-thru feature from the rear touch serial port through the front panel config serial port. • 1 = Enables the touch pass-thru feature from the rear touch serial port through the front panel config serial port. <p>This is useful for connecting a PC to the front config serial port on the TPI-PRO and controlling touch input on that PC from the touch panel connected to the touch input port.</p> <p>Example:</p> <pre>SEND COMMAND Panel,"'^TPS-1' "</pre> <p>Enables the touch input data to be passed through to the front config serial port.</p>
WAKE Force the panel out of screen saver mode.	<p>Syntax:</p> <pre>" 'WAKE' "</pre> <p>Example:</p> <pre>SEND COMMAND Panel," 'WAKE' "</pre> <p>Forces the panel out of the screen saver mode.</p>

Input Commands



A device must first be defined in the NetLinx programming language with values for the Device: Port: System (in all programming examples - Panel is used in place of these values and represents all compatible G4 devices).

These commands are not case-sensitive.

Input Commands													
^CAL Put panel in calibration mode.	<p>Syntax:</p> <pre>''^CAL''</pre> <p>Example:</p> <pre>SEND_COMMAND Panel, ''^CAL''</pre> <p>Puts the panel in calibration mode.</p>												
^KPS Set the keyboard pass-thru.	<p>Note: This command can be overridden by a ^PPS command (see page 136).</p> <p>Syntax:</p> <pre>SEND_COMMAND <DEV>, ''^KPS-<pass data>''</pre> <p>Variables (pass data):</p> <ul style="list-style-type: none"> • <blank/empty> = Disables the keyboard. • 0 = Clears the pass through. Keyboard data goes to G4 application (default). • 1 = Pass data to device on port 1. • 2 = Pass data to device on port 2. • 3 = Pass data to device on port 3. • 4 = Pass data to device on port 4. • 5 = Pass data to master. Keyboard passed as a string to master. <p>Example:</p> <pre>SEND_COMMAND Panel, ''^KPS-2''</pre> <p>Sets the keyboard pass-thru via the Input 2 USB port.</p> <p>Note: The functionality of the ^MPS and ^KPS commands can be emulated using a USB Keyboard plugged into the TPI-PRO/DVI by using the following keystroke combinations:</p> <table> <thead> <tr> <th>Keystroke Combo</th><th>Equivalent Command</th></tr> </thead> <tbody> <tr> <td>CTRL+ALT+KEYBOARD0</td><td>^MPS-0 and ^KPS-0</td></tr> <tr> <td>CTRL+ALT+KEYBOARD1</td><td>^MPS-1 and ^KPS-1</td></tr> <tr> <td>CTRL+ALT+KEYBOARD2</td><td>^MPS-2 and ^KPS-2</td></tr> <tr> <td>CTRL+ALT+KEYBOARD3</td><td>^MPS-3 and ^KPS-3</td></tr> <tr> <td>CTRL+ALT+KEYBOARD4</td><td>^MPS-4 and ^KPS-4</td></tr> </tbody> </table>	Keystroke Combo	Equivalent Command	CTRL+ALT+KEYBOARD0	^MPS-0 and ^KPS-0	CTRL+ALT+KEYBOARD1	^MPS-1 and ^KPS-1	CTRL+ALT+KEYBOARD2	^MPS-2 and ^KPS-2	CTRL+ALT+KEYBOARD3	^MPS-3 and ^KPS-3	CTRL+ALT+KEYBOARD4	^MPS-4 and ^KPS-4
Keystroke Combo	Equivalent Command												
CTRL+ALT+KEYBOARD0	^MPS-0 and ^KPS-0												
CTRL+ALT+KEYBOARD1	^MPS-1 and ^KPS-1												
CTRL+ALT+KEYBOARD2	^MPS-2 and ^KPS-2												
CTRL+ALT+KEYBOARD3	^MPS-3 and ^KPS-3												
CTRL+ALT+KEYBOARD4	^MPS-4 and ^KPS-4												
^MPS Set the mouse pass-thru.	<p>Note: This command can be overridden by a ^PPS command (see page 136).</p> <p>Syntax:</p> <pre>SEND_COMMAND <DEV>, ''^MPS-<pass data>''</pre> <p>Variables (pass data):</p> <ul style="list-style-type: none"> • <blank/empty> = Disables the mouse and clears the cursor from the display. • 0 = Clears the pass through. Mouse data goes to G4 application (default). Mouse Cursor will be present on TPI-PRO display. • 1 = Pass data to device on port 1. • 2 = Pass data to device on port 2. • 3 = Pass data to device on port 3. • 4 = Pass data to device on port 4. • 5 = Pass data to master. Mouse buttons passed as a custom event. • 6 = Pass data to master. Mouse buttons and movements passed as a custom event. 												

Input Commands (Cont.)															
^MPS (Cont.)	<p>Example:</p> <pre>SEND_COMMAND Panel, "'^MPS-2'"</pre> <p>Sets the mouse pass-thru via the Input 2 USB port.</p> <p>Note: When this command is given, it causes all mice connected to the G4 product and any mice on a computer connected via USB output to reset to position 0,0.</p> <p>Note: The functionality of the ^MPS and ^KPS commands can be emulated using a USB Keyboard plugged into the TPI-PRO/DVI by using the following keystroke combinations:</p> <table> <thead> <tr> <th>Keystroke Combo</th><th>Equivalent Command</th></tr> </thead> <tbody> <tr> <td>CTRL+ALT+KEYBOARD0</td><td>^MPS-0 and ^KPS-0</td></tr> <tr> <td>CTRL+ALT+KEYBOARD1</td><td>^MPS-1 and ^KPS-1</td></tr> <tr> <td>CTRL+ALT+KEYBOARD2</td><td>^MPS-2 and ^KPS-2</td></tr> <tr> <td>CTRL+ALT+KEYBOARD3</td><td>^MPS-3 and ^KPS-3</td></tr> <tr> <td>CTRL+ALT+KEYBOARD4</td><td>^MPS-4 and ^KPS-4</td></tr> </tbody> </table>	Keystroke Combo	Equivalent Command	CTRL+ALT+KEYBOARD0	^MPS-0 and ^KPS-0	CTRL+ALT+KEYBOARD1	^MPS-1 and ^KPS-1	CTRL+ALT+KEYBOARD2	^MPS-2 and ^KPS-2	CTRL+ALT+KEYBOARD3	^MPS-3 and ^KPS-3	CTRL+ALT+KEYBOARD4	^MPS-4 and ^KPS-4		
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CTRL+ALT+KEYBOARD0	^MPS-0 and ^KPS-0														
CTRL+ALT+KEYBOARD1	^MPS-1 and ^KPS-1														
CTRL+ALT+KEYBOARD2	^MPS-2 and ^KPS-2														
CTRL+ALT+KEYBOARD3	^MPS-3 and ^KPS-3														
CTRL+ALT+KEYBOARD4	^MPS-4 and ^KPS-4														
^PPS Set the pass-thru for a selected source input.	<p>Sets USB Port pass through, including mouse, keyboard and touch.</p> <p>Note: The ^PPS command replaces the separate ^MPS, ^KPS commands that were used on the TPI-4 (pass through cannot be selected based on device). The command may only be used AFTER the HUB has been recognized and enumerated by the remote PC.</p> <p>Syntax:</p> <pre>SEND_COMMAND <DEV>, "'^PPS-<pass data>'"</pre> <p>Variables:</p> <ul style="list-style-type: none"> pass data = <ul style="list-style-type: none"> 0 = Pass data to G4 application (default). 1 = Pass data to device on port 1. 2 = Pass data to device on port 2. 3 = Pass data to device on port 3. 4 = Pass data to device on port 4. 5 = Pass data to master. Mouse buttons passed as a custom event. Keyboard passed as a string. 6 = Pass data to master. Mouse buttons and movements passed as a custom event. Keyboard passed as a string. <p>Example:</p> <pre>SEND COMMAND Panel, "'^PPS-3'"</pre> <p>Sets USB pass-thru to the device on port 3.</p> <p>Note: When using the ^PPS command to enable USB Port pass through, a mouse connected to the TPI-PRO/DVI will no longer be available to G4. The mouse will solely interact with the remote PC. Any keyboard inputs will be sent to the remote PC, while G4 will trap for certain keystroke combinations described below.</p> <p>Any touch inputs will be processed by G4 and sent to the remote PC until something turns off the ^PPS command (either by ^PPS-0 or keystroke combinations described below).</p> <p>The functionality of the ^PPS can be emulated using a USB Keyboard plugged into the TPI-PRO/DVI by using keystroke combinations.</p> <table> <thead> <tr> <th>Keystroke Combo</th><th>Equivalent Command</th></tr> </thead> <tbody> <tr> <td>CTRL+ALT+NUMPAD1</td><td>^PPS-1</td></tr> <tr> <td>CTRL+ALT+NUMPAD2</td><td>^PPS-2</td></tr> <tr> <td>CTRL+ALT+NUMPAD3</td><td>^PPS-3</td></tr> <tr> <td>CTRL+ALT+NUMPAD4</td><td>^PPS-4</td></tr> <tr> <td>CTRL+ALT+NUMPAD0</td><td>^PPS-0</td></tr> <tr> <td>CTRL+ALT+ESC</td><td>^PPS-0</td></tr> </tbody> </table>	Keystroke Combo	Equivalent Command	CTRL+ALT+NUMPAD1	^PPS-1	CTRL+ALT+NUMPAD2	^PPS-2	CTRL+ALT+NUMPAD3	^PPS-3	CTRL+ALT+NUMPAD4	^PPS-4	CTRL+ALT+NUMPAD0	^PPS-0	CTRL+ALT+ESC	^PPS-0
Keystroke Combo	Equivalent Command														
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CTRL+ALT+NUMPAD2	^PPS-2														
CTRL+ALT+NUMPAD3	^PPS-3														
CTRL+ALT+NUMPAD4	^PPS-4														
CTRL+ALT+NUMPAD0	^PPS-0														
CTRL+ALT+ESC	^PPS-0														

Input Commands (Cont.)	
^SLT Send a command to a given slot. <i>Only available with VG-Series and TPI-PRO panels.</i>	<p>These commands are directed at the video card subsystems. Slot commands contain a series of name/value pairs separated by commas.</p> <p>These commands are case insensitive.</p> <p>Syntax:</p> <pre>SEND_COMMAND <DEV>,"'^SLT-<slot number>,<slot command>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> slot number = 1 - 4 (each of these options corresponds to an input position.) <ul style="list-style-type: none"> Slot 1 = source input position 1. Slot 2 = source input position 2. Slot 3 = source input position 3. Slot 4 = source input position 4. slot command = see list below. <p>Input: Set input type for a slot. Input type can be Composite (comp1, comp2, or comp3), Svideo, Component, RGB, or DVI.</p> <p>Syntax:</p> <pre>input=<input type></pre> <pre>input = <svideo,component,comp1,comp2,comp3,rgb,dvi></pre> <p>Note: DVI input is only available on TPI-PRO-DVI.</p> <p>Example:</p> <pre>SEND_COMMAND TP,"'^SLT-1,input=component' "</pre> <p>Switches input 1 to detect component input signals.</p> <pre>SEND_COMMAND TP,"'^SLT-3,input=rgb' "</pre> <p>Switches input 3 to detect RGB input signals.</p> <p>Resolution: Set input resolution detection to manual or auto. Valid choices are auto, or specify manual resolution. Valid for only Component or RGB input types.</p> <p>Syntax:</p> <pre>resolution=<></pre> <pre>resolution = <auto> or <horizontal>x<vertical>@<refresh><description></pre> <p>Default is auto.</p> <p>See latest product manual for supported input resolutions for different input types.</p> <p>Example:</p> <pre>SEND_COMMAND TP,"'^SLT-1,resolution=auto' "</pre> <p>Switches input 1 to detect resolution automatically.</p> <pre>SEND_COMMAND TP,"'^SLT-3,resolution=1600x1200@60' "</pre> <p>Switches input 3 to force input timings to an expected 1600x1200@60 input.</p> <p>?Input: Query the input type for an input.</p> <p>Syntax:</p> <pre>?input</pre> <p>The TPI-PRO/DVI will respond with a DATA COMMAND event from port 1 of the panel. The DATA.TEXT of the event will be in the following format.</p> <pre>'^SLT-<slot number 1-4>,input=<input type>'</pre> <p>Input type will be the current selected input type and will be one of the following:</p> <pre>comp1,comp2,comp3,svideo,rgb,component,dvi</pre> <p>Example:</p> <pre>SEND_COMMAND TP,"'^SLT-1,?input' "</pre> <p>Queries input 1 for the current input type. Panel will respond with a DATA Command event.</p>

Input Commands (Cont.)	
^SLT (Cont.)	<p>If input 1 is set to composite 1, the Command response will be: ^SLT-1,input=comp1</p> <p>If input 1 is set to composite 2, the Command response will be: ^SLT-1,input=comp2</p> <p>If input 1 is set to composite 3, the Command response will be: ^SLT-1,input=comp3</p> <p>If input 1 is set to svideo, the Command response will be: ^SLT-1,input=svideo</p> <p>If input 1 is set to RGB, the Command response will be: ^SLT-1,input=rgb</p> <p>If input 1 is set to component, the Command response will be: ^SLT-1,input=component</p> <p>If input 1 is set to DVI, the Command response will be: ^SLT-1,input=dvi</p> <p>?Resolution: Query the detected resolution for an input. Syntax: ?resolution</p> <p>The TPI-PRO/DVI will respond with a DATA COMMAND event from port 1 of the panel. The DATA.TEXT of the event will be in the following format. '^SLT-<slot number 1-4>,resolution=<detected resolution string>'</p> <p>Example: SEND_COMMAND TP,"'^SLT-1,?resolution'"</p> <p>Queries input 1 for the current input resolution. Panel will respond with a DATA Command event. Command data will vary depending on input type and detected resolution. For composite and svideo: NTSC, PAL, ..., No Signal Detected For component, RGB, and DVI: <Horz>x<Vert>@<Ref> <desc>, No Signal Detected, or Manual:<Horz>x<Vert>@<Ref> <desc></p>
^VKS Send one or more virtual keystrokes to the G4 application.	<p>Key presses and key releases are not distinguished except in the case of CTRL, ALT, and SHIFT.</p> <p>The <i>Embedded Codes</i> section on page 139 defines special characters which can be included with the string, but may not be represented by the ASCII character set.</p> <p>Syntax: "'^VKS-<string>'"</p> <p>Variable: • string = Only 1 string per command/only one stroke per command.</p> <p>Example: SEND_COMMAND Panel,"'^VKS-'8"</p> <p>Sends out the keystroke 'backspace' to the G4 application.</p>

Embedded Codes

The following is a list of G4 compatible embedded codes:

Embedded Codes		
Decimal numbers	Hexidecimal values	Virtual keystroke
8	(\$08)	Backspace
13	(\$0D)	Enter
27	(\$1B)	ESC
128	(\$80)	CTRL key down
129	(\$81)	ALT key down
130	(\$82)	Shift key down
131	(\$83)	F1
132	(\$84)	F2
133	(\$85)	F3
134	(\$86)	F4
135	(\$87)	F5
136	(\$88)	F6
137	(\$89)	F7
138	(\$8A)	F8
139	(\$8B)	F9
140	(\$8C)	F10
141	(\$8D)	F11
142	(\$8E)	F12
143	(\$8F)	Num Lock
144	(\$90)	Caps Lock
145	(\$91)	Insert
146	(\$92)	Delete
147	(\$93)	Home
148	(\$94)	End
149	(\$95)	Page Up
150	(\$96)	Page Down
151	(\$97)	Scroll Lock
152	(\$98)	Pause
153	(\$99)	Break
154	(\$9A)	Print Screen
155	(\$9B)	SYSRQ
156	(\$9C)	Tab
157	(\$9D)	Windows
158	(\$9E)	Menu
159	(\$9F)	Up Arrow
160	(\$A0)	Down Arrow
161	(\$A1)	Left Arrow
162	(\$A2)	Right Arrow
192	(\$C0)	CTRL key up
193	(\$C1)	ALT key up
194	(\$C2)	Shift key up

Panel Setup Commands



A device must first be defined in the NetLinx programming language with values for the Device: Port: System (in all programming examples - Panel is used in place of these values and represents all compatible G4 devices).

These commands are not case sensitive.

Panel Setup Commands	
^MUT Set the panel mute state.	Syntax: <pre>''^MUT-<mute state>''</pre> Variable: mute state= 0 = Mute Off and 1 = Mute On. Example: <pre>SEND_COMMAND Panel, ''^MUT-1''</pre> Sets the panel's master volume to mute.
@PWD Set the page flip password.	@PWD sets the level 1 password only. Syntax: <pre>''@PWD-<page flip password>''</pre> Variables: page flip password = 1 - 50 ASCII characters. Example: <pre>SEND_COMMAND Panel, ''@PWD-Main''</pre> Sets the page flip password to 'Main'.
^PWD Set the page flip password.	Password level is required and must be 1 - 4. Syntax: <pre>''^PWD-<password level>,<page flip password>''</pre> Variables: password level = 1 - 4. page flip password = 1 - 50 ASCII characters. Example: <pre>SEND_COMMAND Panel, ''^PWD-1,Main''</pre> Sets the page flip password on Password Level 1 to 'Main'.
^VOL Set the panel volume.	Syntax: <pre>''^VOL-<volume level>''</pre> Variable: volume level = 0 - 100. 100 is maximum volume setting. Example: <pre>SEND_COMMAND Panel, ''^VOL-50''</pre> Set the panel volume to 50.

Listbox Commands

Listboxes provide flexibility to remote pages once constrained by physical display areas. Both static and dynamic tables can display multiple devices and items when used with proper navigation tools. List Box commands can be used in conjunction with the application *TPDesign4* to create both static and dynamic commands.

Any data field (including primary data) may be enclosed in double quotes so that commas within that data field will not be interpreted as delimiters. Within the double quotes in such a field, the backslash (\) is treated as an escape character so that double quote literals can still be used within the field. When a backslash is encountered, it is discarded and the following character is treated as a literal. This means that if a backslash is part of the data field, it needs to be escaped with a preceding backslash as well.

When a column or row number is required as a field in any command, note that the numbering begins at 1, not 0 (i.e. the first column is column 1 and the first row is row 1).

There are no hard limits enforced for the number of list boxes and such list box parameters as list address and column count. The range is determined by available memory, which is affected by things like how many lists are defined and how many items will be added for each list.

Data List Commands

The TPI-PRO/DVI supports the following Data List Commands.

Data List Commands	
^LDN Creates a new data list.	<p>It is up to the program to make sure the list address and name are unique.</p> <p>Syntax: <code>''^LDN-<list port>,<list address>,<column count>,<list name>''</code></p> <p>Variables:</p> <ul style="list-style-type: none"> list port = 1-100. Port where data resides list address = address where data resides column count = the number of data columns (includes hidden columns) list name = User specified name for the data list <p>Example: <code>SEND_COMMAND Device, ''^LDN-5,1,4,my songs''</code></p> <p>Creates a data list of 4 columns named "<i>my songs</i>" and places it at port 5, address 1.</p>
^LDA Adds a new row to an existing data list. Primary data is required.	<p>Syntax: <code>SEND_COMMAND <DEV>,''^LDA-<list address>,<uniflag>,<primary data>,<data2>...''</code></p> <p>Variables:</p> <ul style="list-style-type: none"> list address = address where data resides uniflag = indicates unicode; 0 - No unicode, 1 - Uses unicode primary data = the "key" data column. The information in this column provides each row with its uniqueness. data2 = variable, column data information. The number of data fields is limited only to the number of columns in the data list. <p>Example: <code>SEND_COMMAND Device, ''^LDA-1,0,Entry5,Meatloaf,Best of,Anything for Lunch''</code></p> <p>Adds a text row to the data list located at address 1. The primary data is set as Entry5. Meatloaf, Best of, and Anything for Love are all cells within the new row.</p>

Data List Commands (Cont.)	
^LDA (Cont.)	<p>Example (unicode):</p> <pre>SEND_COMMAND Device, "'^LDA-1,1,0045006E0074007200790035,004D006500610074006C006F00610061,00420065007300740020006F0066,0041006E0079007400680069006E006700200066006F00720020004C006F00760065'"</pre> <p>Adds a unicode text row to the data list located at address 1.</p> <p>The primary data is set as Entry5.</p> <p>Meatloaf, Best of, and Anything for Lunch are all cells within the new row.</p>
^LDR Removes a row from an existing data list	<p>Syntax:</p> <pre>SEND_COMMAND <DEV>, "'^LDR-<list address>,<uniflag>,<primary data>'"</pre> <p>Variables:</p> <ul style="list-style-type: none"> list address = address where data resides uniflag = indicates unicode; 0 - No unicode, 1 - Uses unicode primary data = the "key" data column. The information in this column provides each row with its uniqueness. <p>Example:</p> <pre>SEND_COMMAND Device, "'^LDR-1,0,Entry5'"</pre> <p>Removes the text row with primary data Entry5 from an existing data list at address 1.</p>
^LDC Clears all rows in a given list	<p>Syntax:</p> <pre>"'^LDC-<list address>'"</pre> <p>Variables:</p> <ul style="list-style-type: none"> list address = address where data resides <p>Example:</p> <pre>SEND_COMMAND Device, "'^LDC-1'"</pre> <p>Clears all rows in data list located at address 1.</p>
^LDD Deletes the data list	<p>Syntax:</p> <pre>"'^LDD-<list address>'"</pre> <p>Variables:</p> <ul style="list-style-type: none"> list address = address where data resides <p>Example:</p> <pre>SEND_COMMAND Device, "'^LDD-1'"</pre> <p>Deletes the data list located at address 1.</p>

Data List Commands (Cont.)	
^LDT Sets the column type for a data list	<p>Set the column type for a data list by modifying its column type. Column is the index of the first type to set. Additional types sent will be set in this order:</p> <ul style="list-style-type: none"> 0 - Text 1 - Reserved 2 - Reserved 3 - Channel 4 - Page <p>Syntax:</p> <pre>SEND_COMMAND <DEV>,"'^LDT-<list address>,<column>,<type>,<type>...' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> list address = address where data resides column = the starting column number (first column is 1) type = subsequent columns. 0 - Text; 3 - Channel; 4 - Page <p>Example:</p> <pre>SEND_COMMAND Device,"'^LDT-1,1,0,0,0' "</pre> <p>Sets the column type for the data list located at address 1. The column type starts at column 1, the first column is Text, the second and third columns are also Text.</p>
^LDL Modifies the data in a single column field	<p>Modifies the data in a single column field. This can be used to load a data list that has long text fields.</p> <p>Syntax:</p> <pre>SEND_COMMAND <DEV>,"'^LDL-<list address>, <column>, <uniflag>,<primary data>,<data column>' "</pre> <p>Variables:</p> <ul style="list-style-type: none"> list address = address where data resides column = the starting column number (first column is 1) uniflag = indicates unicode; 0 - No unicode, 1 - Uses unicode primary data = the "key" data column. The information in this column provides each row with its uniqueness. new cell data = data information for a single field or "cell" <p>Example:</p> <pre>SEND_COMMAND Device,"'^LDL-1,1,0,Entry5,Music' "</pre> <p>The field located in column 1, in the row with the primary data "Entry5" and in the data list located at the address of 1 is a text value of Music.</p> <p>Example (unicode):</p> <pre>SEND_COMMAND Device, "'^LDL-1,1,1,0045006E0074007200790035,004D0075007300690063' "</pre> <p>The field located in column 1, in the row with the primary data "Entry5" and in the data list located at the address of 1 is a text value of Music.</p>

List View Commands

The TPI-PRO/DVI supports the following List View Commands.

List View Commands	
^LVC Set the table column display order according to the order of the entered column values	Set the table column display order according to the order of the entered column values. Syntax: <pre>SEND_COMMAND <DEV>, "'^LVC-<view address>,<column>,<column>...' "</pre> Variables: <ul style="list-style-type: none"> • view address = the address of the view definition • column = the column number to display (first column is 1) Example: <pre>SEND_COMMAND Device, "'^LVC-3,5,2,1' "</pre> Sets the column display order to column 5 first, then column 2, and then column 1. The data list is displayed according to the view definitions located at address 3.
^LVF Filter a list by setting what column to use and what string to compare	Filter a list by setting what column to use and what string to compare. Note that setting column to zero or data to none makes the filtered ordering the same as sorted ordering. Update must be called for changes to take effect. Syntax: <pre>SEND_COMMAND <DEV>, "'^LVF-<view address>,<uniflag>,<column>,<search data>' "</pre> Variables: <ul style="list-style-type: none"> • view address = the address of the view definition • uniflag = indicates unicode; 0 - No unicode, 1 - Uses unicode • column = the starting column number (first column is 1) • search data = the data on which to filter Example: <pre>SEND_COMMAND Device, "'LVF-1,0,2,Smith' "</pre> Filters list based on column 2 such that only those rows whose column 2 contains Smith are displayed. The data is displayed according to the view definitions located at address 1. Filter is case sensitive.
^LVL Set the data list to be displayed	Set the data list to be displayed. Syntax: <pre>SEND_COMMAND <DEV>, "'^LVL-<view address>,<list port>,<list address>' "</pre> Variables: <ul style="list-style-type: none"> • view address = the address of the view definition • list port = 1-100. port where data resides • list address = address where data resides Example: <pre>SEND_COMMAND Device, "'^LVL-5,my songs' "</pre> Sets the data list viewed to my songs and displays it according to the view definitions located at address 5.

List View Commands (Cont.)	
^LVM Display a new position	Display a new position. If select is set, then select that new position. Syntax: <pre>SEND_COMMAND <DEV>,"'^LVM-<view address>,<offset>'"</pre> Variables: <ul style="list-style-type: none"> view address = the address of the view definition offset = + / - numeric display shift Example: <pre>SEND_COMMAND Device,"'^LVM-2,-4'"</pre> Shifts the display -4 and displays the list according to the view definitions located at address 2.
^LVO Display a data list according to a preset sort/ordering view definition.	Display a data list according to a preset sort/ordering view definition. This command tells the view which of the possible orderings to use. Note that the <sort> field is a bitmask, so that the 3 bit positions may be combined. Syntax: <pre>SEND_COMMAND <DEV>,"'^LVO-<view address>,<sort>'"</pre> Variables: <ul style="list-style-type: none"> view address = the address of the view definition sort = bitmask with the following bit assignments: 0x0001 = Sort 0x0002 = Reverse 0x0004 = Filter <p>Note: Of special note is the reverse bit (0x0002), which reverses the list whatever order it is currently in. When used on a sorted list, it results in a reverse sort. When used on a reverse sorted list, it results in a forward sorted list. In most cases, the reverse bit should not be used alone, but should be used in combination with the sort bit (0x0003) such that it always results in a reverse sorted list.</p> Possible values for the sort field: <ul style="list-style-type: none"> 0 = None 1 = Forward Sort 2 = Reverse the current list ordering (may or may not be sorted) 3 = Reverse Sort 4 = Filter 5 = Forward Sort + Filter 6 = Reverse current + filter 7 = Reverse sort + filter Example: <pre>SEND_COMMAND Device,"'^LVO-1,7'"</pre> Displays the data list according to the view definitions located at address 1 and filters and reverse sorts the list.
^LVP Display a new position	Display a new position. If the select option is set, then select that position. Syntax: <pre>SEND_COMMAND <DEV>,"'^LVP-<view address>,<index>'"</pre> Variables: <ul style="list-style-type: none"> view address = the address of the view definition index = the row number in sequential order (first row is 1) Example: <pre>SEND_COMMAND Device,"'^LVP-5,3'"</pre> Sets the display position starting at the third row and displays it according to the view definitions located at address 5.

List View Commands (Cont.)	
^LVS Set the column order for sorting	Set the column order for sorting. Update must be called for changes to take effect. Syntax: <pre>SEND_COMMAND <DEV>,"'^LVS-<view address>,<column>,<column>...' "</pre> Variables: <ul style="list-style-type: none"> • view address = the address of the view definition • column = the starting column number (first column is 1) Example: <pre>SEND_COMMAND Device,"'^LVS-3,5,2,1' "</pre> Sets the column sort order to column 5 first, then column 2 and then column 1. The data list is displayed according to the view definitions located at address 3.
^LVU Update any view currently looking at this list	Update any view currently looking at this list. Note: <i>This must be called after changes to list data.</i> Syntax: <pre>SEND_COMMAND <DEV>,"'^LVU-<view address>' "</pre> Variables: <ul style="list-style-type: none"> • view address = the address of the view definition Example: <pre>SEND_COMMAND Device,"'^LVU-3' "</pre> Updates the data list and displays it according to the view definitions located at address 3.

Dynamic Image Commands



A device must first be defined in the NetLinx programming language with values for the Device: Port: System (in all programming examples - Panel is used in place of these values and represents all compatible G4 devices).

The following is a listing and descriptions of Dynamic Image Commands.

Dynamic Image Commands	
^BBR Set the bitmap of a button to use a particular resource.	<p>Syntax:</p> <pre>''^BBR-<vt addr range>,<button states range>,<resource name>''</pre> <p>Variables:</p> <ul style="list-style-type: none"> • variable text address range = 1 - 4000. • button states range = 1 - 256 for multi-state buttons (0 = All states, for General buttons, 1 = Off state and 2 = On state). • resource name = 1 - 50 ASCII characters. <p>Example:</p> <pre>SEND_COMMAND Panel, ''^BBR-700,1,Sports_Image''</pre> <p>Sets the resource name of the button to 'Sports_Image'.</p>

Dynamic Image Commands (Cont.)**^RAF**

Add new resources.

Adds any and all resource parameters by sending embedded codes and data.

Syntax:

```
"'^RAF-<resource name>,<data>'"
```

Variable:

resource name = 1 - 50 ASCII characters.

data = Refers to the embedded codes, see table below.

Embedded Codes:		
Parameter	Embedded Code	Description
protocol	'%P<0-1>'	Set protocol. HTTP (0) or FTP (1)
user	'%U<user>'	Set Username for authentication.
password	'%S<password>'	Set Password for authentication.
host	'%H<host>'	Set Host Name (fully qualified DNS or IP Address).
file	'%F<file>'	Full path to the location of the file or program that will return the resource. The path must be a valid HTTP URL minus the protocol and host. The only exception to this is the inclusion of special escape sequences and in the case of the FTP protocol, regular expressions.
path	'%A<path>'	Set Directory path. The path must be a valid HTTP URL minus the protocol, host, and filename. The only exception to this is the inclusion of special escape sequences and in the case of the FTP protocol, regular expressions.
refresh	'%R<refresh 1-65535>'	The number of seconds between refreshes in which the resource is downloaded again. Refreshing a resource causes the button displaying that resource to refresh also. The default value is 0 (only download the resource once).
newest	'%N<0-1>'	Set the newest file. A value of 1 means that only the most recent file matching the pattern is downloaded.
preserve	'%V<0-1>'	Set the value of the preserve flag. Default is 0. Currently preserve has no function.

Example:

```
SEND_COMMAND Panel, "'^RAF-New Image,%P0%HAMX.COM%ALab/
Test_file%Ftest.jpg'"
```

Adds a new resource.

The resource name is

'New Image', %P (protocol) is an HTTP,

%H (host name) is **AMX.COM**,

%A (file path) is Lab/Test file,

and %F (file name) is **test.jpg**.

Dynamic Image Commands (Cont.)	
^RFR Force a refresh for a given resource.	Syntax: " '^RFR-<resource name>' " Variable: resource name = 1 - 50 ASCII characters. Example: SEND_COMMAND Panel, " '^RFR-Sports_Image' " Forces a refresh on 'Sports_Image'.
^RMF Modify an existing resource.	Syntax: " '^RMF-<resource name>,<data>' " Variable: resource name = 1 - 50 ASCII characters data = Refer to the table in the RAF command for more information. Example: SEND_COMMAND Panel, " '^RMF-Sports_Image,%ALab_Test/Images%Ftest.jpg' " Changes the resource 'Sports_Image' file name to 'test.jpg' and the path to 'Lab_Test/Images'.
^RSR Change the refresh rate for a given resource.	Syntax: " '^RSR-<resource name>,<refresh rate>' " Variable: resource name = 1 - 50 ASCII characters. refresh rate = Measured in seconds. Example: SEND_COMMAND Panel, " '^RSR-Sports_Image,5' " Sets the refresh rate to 5 seconds for the given resource ('Sports_Image').

Programming - Button Properties

The following sections describe various button properties, which are set within the TPDesign4 Touch Panel Design program. TPDesign4 is available to download from www.amx.com. Refer to the TPDesign4 online help for detailed instructions on setting button

Text Formatting Codes for Bargraphs/Joysticks

Text formatting codes for bargraphs provide a mechanism to allow a portion of a bargraph's text to be dynamically provided information about the current status of the level (multi-state and traditional). These codes would be entered into the text field along with any other text.

The following is a code list used for bargraphs:

Bargraph Text Code Inputs		
Code	Bargraph	Multi-State Bargraph
\$P	Display the current percentage of the bargraph (derived from the Adjusted Level Value as it falls between the Range Values)	Display the current percentage of the bargraph (derived from the Adjusted Level Value as it falls between the Range Values)
\$V	Raw Level Value	Raw Level Value
\$L	Range Low Value	Range Low Value
\$H	Range High Value	Range High Value
\$S	N/A	Current State
\$A	Adjusted Level Value (Range Low Value subtracted from the Raw Level Value)	Adjusted Level Value (Range Low Value subtracted from the Raw Level Value)
\$R	Low Range subtracted from the High Range	Low Range subtracted from the High Range
\$\$	Dollar sign	Dollar sign

By changing the text on a button (via a VT command) you can modify the codes on a button. When one of the Text Formatting Codes is encountered by the firmware it is replaced with the correct value. These values are derived from the following operations:

Formatting Code Operations	
Code	Operation
\$P	$(\text{Current Value} - \text{Range Low Value} / \text{Range High Value} - \text{Range Low Value}) \times 100$
\$V	Current Level Value
\$L	Range Low Value
\$H	Range High Value
\$S	Current State (if regular bargraph then resolves to nothing)
\$A	Current Value - Range Low Value
\$R	Range High Value - Range Low Value

Given a current raw level value of 532, a range low value of 500 and a high range value of 600 the following text formatting codes would yield the following strings as shown in the table below:

Example	
Format	Display
\$P%	32%
\$A out of \$R	32 out of 100
\$A of 0 - \$R	32 of 0 - 100
\$V of \$L - \$H	532 of 500 - 600

Text Area Input Masking

Text Area Input Masking can be used to limit the allowed/correct characters that are entered into a text area. For example, in working with a zip code, a user could limit the entry to a max length of only 5 characters but, with input masking, you could limit them to 5 mandatory numerical digits and 4 optional numerical digits. A possible use for this feature is to enter information into form fields. The purpose of this feature is to:

- Force you to use correct type of characters (i.e. numbers vs. characters)
- Limit the number of characters in a text area
- Suggest proper format with fixed characters
- Right to Left
- Required or Optional
- Change/Force a Case
- Create multiple logical fields
- Specify range of characters/number for each field

With this feature, it is NOT necessary to:

- Limit you to a choice of selections
- Handle complex input tasks such as names, days of the week, or months by name
- Perform complex validation such as Subnet Mask validation

Input Mask Character Types

These character types define what information is allowed to be entered in any specific instance. The following table lists what characters in an input mask will define what characters are allowed in any given position.

Character Types	
Character	Masking Rule
0	Digit (0 to 9, entry required, plus [+] and minus [-] signs not allowed)
9	Digit or space (entry not required, plus and minus signs not allowed)
#	Digit or space (entry not required; plus and minus signs allowed)
L	Letter (A to Z, entry required)
?	Letter (A to Z, entry optional)
A	Letter or digit (entry required)
a	Letter or digit (entry optional)
&	Any character or a space (entry required)
C	Any character or a space (entry optional)



NOTE

The number of the above characters used determines the length of the input masking box. Example: 0000 requires an entry, requires digits to be used, and allows only 4 characters to be entered/used.

Refer to the following Send Commands for more detailed information:

- ^BIM - Sets the input mask for the specified addresses. (see the ^BIM section on page 104).
- ^BMF subcommand %MK - sets the input mask of a text area (see the ^BMF section on page 106).

Input Mask Ranges

These ranges allow a user to specify the minimum and maximum numeric value for a field. **Only one range is allowed per field. Using a range implies a numeric entry ONLY.**

Input Mask Ranges	
Character	Meaning
[Start range
]	End range
	Range Separator

An example from the above table:

[0|255] This allows a user to enter a value from 0 to 255.

Input Mask Next Field Characters

These characters allow you to specify a list of characters that cause the keyboard to move the focus to the next field when pressed instead of inserting the text into the text area.

Input Mask Next Field Char	
Character	Meaning
{	Start Next Field List
}	End Next Field List

An example from the above table:

{.} or {:} or {.:} Tells the system that after a user hits any of these keys, proceed to the next text area input box.

Input Mask Operations

Input Mask Operators change the behavior of the field in the following way:

Input Mask Operators	
Character	Meaning
<	Forces all characters to be converted to lowercase
>	Forces all characters to be converted to uppercase
^	Sets the overflow flag for this field

Input Mask Literals

To define a literal character, enter any character, other than those shown in the above table (*including spaces, and symbols*). A back-slash ('\') causes the character that follows it to be displayed as the literal character. For example, \A is displayed just as the letter A. To define one of the following characters as a literal character, precede that character with a back-slash. Text entry operation using Input Masks.

A keyboard entry using normal text entry is straightforward. However, once an input mask is applied, the behavior of the keyboard needs to change to accommodate the input mask's requirement. When working with masks, any literal characters in the mask will be "skipped" by any cursor movement including cursor keys, backspace, and delete.

- When operating with a mask, the mask should be displayed with placeholders.
- The "-" character should display where you should enter a character.
- The arrow keys will move between the "-" characters and allow you to replace them.
- The text entry code operates as if it is in the overwrite mode.
- If the cursor is positioned on a character already entered and you type in a new (and valid) character, the new character replace the old character.
- There is no shifting of characters.

When working with ranges specified by the [] mask, the keyboard allows you to enter a number between the values listed in the ranges. If a user enters a value that is larger than the max, the maximum number of right-most characters is used to create a new, acceptable value.

- *Example 1:* If you type "125" into a field accepting 0-100, then the values displayed will be "1", "12", "25".
- *Example 2:* If the max for the field was 20, then the values displayed will be "1", "12", "5".

When data overflows from a numerical field, the overflow value is added to the previous field on the chain, if the overflow character was specified.

In the above example, if the overflow flag was set, the first example will place the "1" into the previous logical field and the second example will place "12" in the previous logical field. If the overflow field already contains a value, the new value will be inserted to the right of the current characters and the overflow field will be evaluated. Overflow continues to work until a field with no overflow value is set or there are no more fields left (i.e. reached first field).

If a character is typed and that character appears in the Next Field list, the keyboard should move the focus to the next field. For example, when entering time, a ":" is used as a next field character.

If you hit "1:2", the 1 is entered in the current field (hours) and then the focus is moved to the next field and 2 is entered in that field.

When entering time in a 12-hour format, entry of AM and PM is required. Instead of adding AM/PM to the input mask specification, the AM/PM should be handled within the NetLinx code. This allows a programmer to show/hide and provide discrete feedback for AM and PM.

Input Mask Output Examples

The following are some common input masking examples:

Output Examples		
Common Name	Input Mask	Input
IP Address Quad	[0 255]{.}	Any value from 0 to 255
Hour	[1 12]{.}	Any value from 1 to 12
Minute/Second	[0 59]{.}	Any value from 0 to 59
Frames	[0 29]{.}	Any value from 0 to 29
Phone Numbers	(999) 000-0000	(555) 555-5555
Zip Code	00000-9999	75082-4567

URL Resources

A URL can be broken into several parts. For example: the URL <http://www.amx.com/company-info-home.asp>. This URL indicates that the protocol in use is **http** (Hyper Text Transport Protocol) and that the information resides on a host machine named **www.amx.com**. The image on that host machine is given an assignment (*by the program*) name of **company-info-home.asp** (*Active Server Page*).

The exact meaning of this name on the host machine is both protocol dependent and host dependent. The information normally resides in a file, but it could be generated dynamically. This component of the URL is called the file component, even though the information is not necessarily in a file.

A URL can optionally specify a port, which is the port number to which the TCP connection is made on the remote host machine. If the port is not specified, the default port for the protocol is used instead. For example, the default port for http is 80.

An alternative port could be specified as: <http://www.amx.com:8080/company-info-home.asp>.



NOTE

Any legal HTTP syntax can be used.

Special Escape Sequences

The system has only a limited knowledge of URL formats in that it transparently passes the URL information onto the server for translation. A user can then pass any parameters to the server side programs such as CGI scripts or active server pages. However, the system will parse the URL looking for special escape codes.

When it finds an escape code it replaces that code with a particular piece of panel, button, or state information.

For example, "[http://www.amx.com/img.asp?device=\\$DV](http://www.amx.com/img.asp?device=$DV)" becomes

<http://www.amx.com/img.asp?device=10001>".

Other used escape sequences include:

Escape Sequences	
Sequence	Panel Information
\$DV	Device Number
\$SY	System Number
\$IP	IP Address
\$HN	Host Name
\$MC	Mac Address
\$ID	Neuron ID
\$PX	X Resolution of current panel mode/file
\$PY	Y Resolution of current panel mode/file
\$BX	X Resolution of current button
\$BY	Y Resolution of current button
\$BN	Name of button
\$ST	Current state
\$AC	Address Code
\$AP	Address Port
\$CC	Channel Code
\$CP	Channel Port
\$LC	Level Code
\$LP	Level Port

Terminal/Telnet Commands

Overview

The following telnet/terminal commands are supported by the TPI-PRO/DVI, via the SERIAL (DB-9) port on the front panel (see the *SERIAL Port* section on page 17).

Terminal/Telnet Commands	
disk free	Show the amount of free space on the disk.
get dns	Show the DNS configuration of a device.
get ip	Show the IP configuration.
get config	Show the current configuration.
mem	Shows size of the largest block of available memory.
msg on off	Enables/Disables extended diagnostic messages.
ping [address]	Pings an address. Address may be an IP or URL.
reboot	Reboots the device.
set dns	Setup the DNS configuration of a device.
set ip	Setup the IP configuration of a device.
show log <start>	Display the message log. • <start> specifies message to begin the display. • 'all' will display all messages
show mem	Display the memory usage for all memory types (requires msg on).
setup	Display setup page on panel.
get cache enable	Get the state of the image cache flash backup
get cache expire	Get current expiration time for image cache entries
get cache size	Get flash cache maximum size
get cache	Display all image cache parameters.
toggle cache enable	Toggle the state of the image cache flash backup
cache purge [mask]	Purge image cache (bit 0=NV, bit 1=RAM)
set cache expire	Set expiration duration for image cache entries
set cache size	Set flash cache maximum size
show connection log	Show the connection logs for the panel.
show connection stats	Show the connection stats for the panel.
get connection	Show the master settings.
get device	Show the device number.
set device	Setup the device number.
set connection	Setup the master settings.
version	Display the version(s) of the units components.
temp info	Display the temperature sensor data.
input stats [1-4]	Display the video input statistics.
Terminal Only	
echo on off	Enables/Disables echo of typed characters.

Upgrading Firmware

Overview

The process of updating firmware requires a communicating NetLinX Master.

The steps for updating firmware to a TPI-PRO/DVI are virtually identical to those necessary for updating .KIT files to a NetLinX Master, except that the target device is a "panel" instead of a Master. Refer to either your Master's literature or NetLinX Studio online help for those instructions.

Use the *Firmware Transfers* utility in NetLinX Studio to transfer firmware upgrades to the TPI-PRO/DVI. In NetLinX Studio, select **Tools > Firmware Upgrades > Send To NetLinX Device** to access the *Send To NetLinX Device* dialog shown in FIG. 81:

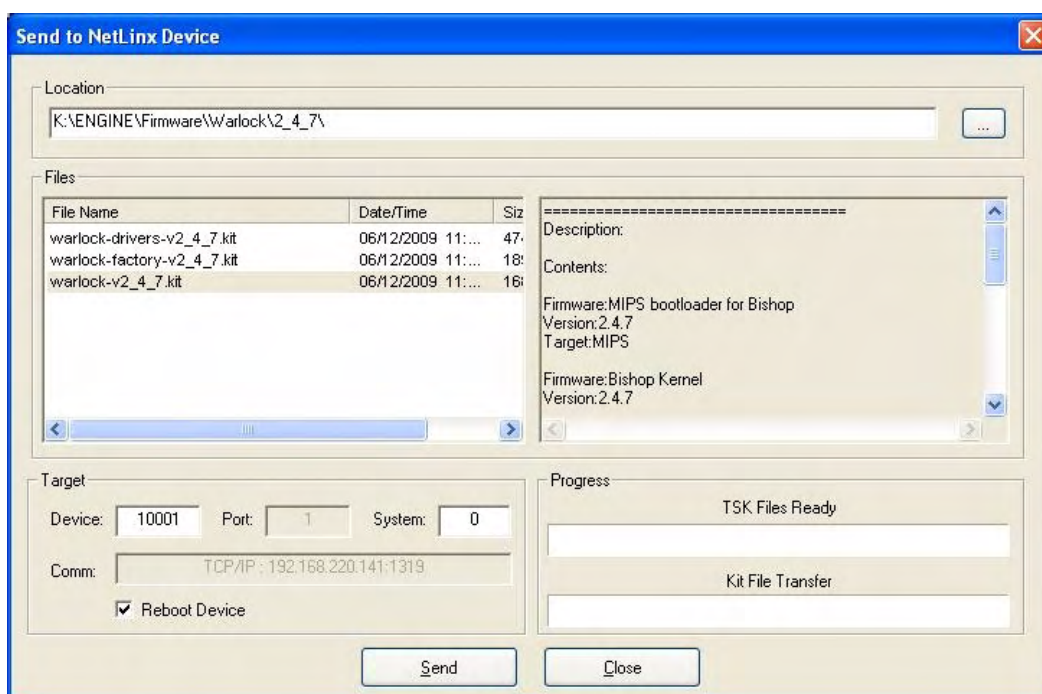


FIG. 81 NetLinX Studio - Firmware Transfer Tool - Send to NetLinX Device dialog

Before beginning the firmware upgrade process:

- Setup and configure your NetLinX Master. Refer to your particular NetLinX Master instruction manual for detailed setup procedures.
- Select the correct resolution, touch drivers, and calibrate the TPI-PRO/DVI (see the *Calibrating the TPI-PRO/DVI* section on page 36).
- Configure your TPI-PRO/DVI for direct communication (see the *Configuring TPI-PRO/DVI IP Settings* section on page 44 for details regarding Ethernet communication).
- Verify that the TPI-PRO/DVI is powered and connected to the NetLinX Master via Ethernet.



A TPI-PRO/DVI which is not using a valid username and password will not be able to communicate with a secured Master.

If you are updating the firmware on a TPI-PRO/DVI which is not using a username or password field, you must first remove the Master Security feature to establish an unsecured connection.

1) Prepare the NetLinX Master for Ethernet Communication

1. Obtain the IP Address of the NetLinX Master to which the TPI-PRO/DVI is connected.
 - In NetLinX Studio's *Online (device) Tree*, select the target NetLinX Master.
 - Note the Master's IP address and Gateway information.
2. In NetLinX Studio, open the *Master Communication Settings* dialog (FIG. 82).

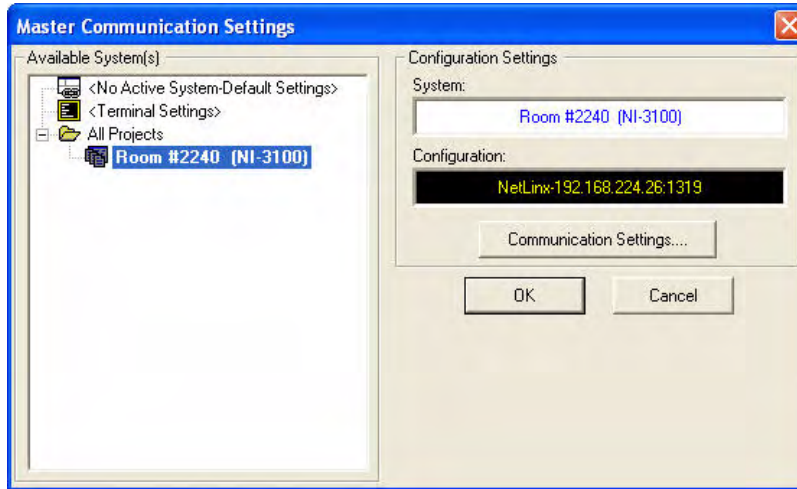


FIG. 82 NetLinX Studio - Master Communication Settings dialog

3. Click **Communications Settings** to open the *Communications Settings* dialog (FIG. 83).

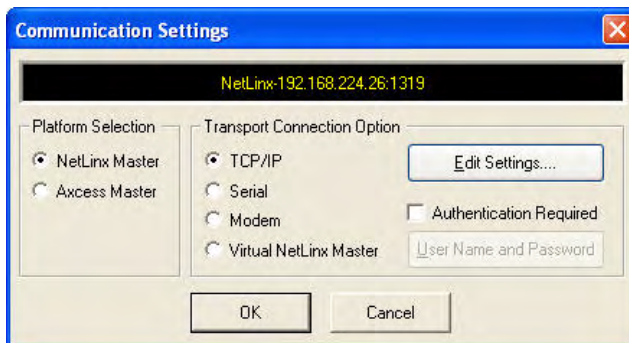


FIG. 83 NetLinX Studio - Communication Settings dialog

4. Under *Platform Selection*, select **NetLinX Master**.
5. Click on **Authentication Required** if the Master is secured, then enter a valid Username and Password.
6. Under *Transport Connection Option*, select **TCP/IP**.
7. Click **Edit Settings** to open the *TCP/IP Settings* dialog (FIG. 84).

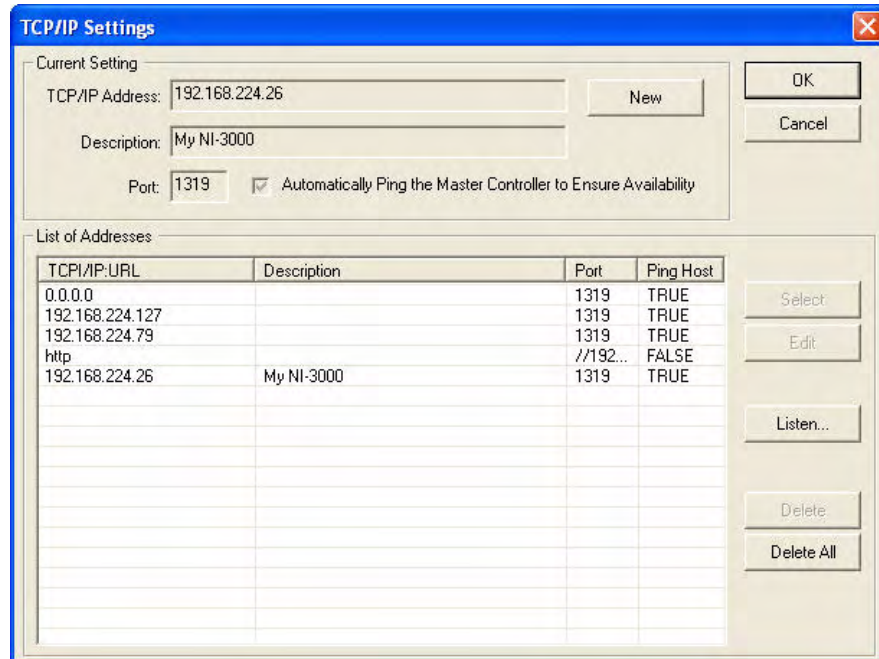


FIG. 84 NetLinx Studio - TCP/IP Settings dialog

8. Add the Master's IP Address to the List of Addresses:

- Click **New** to add the Master's IP Address, via the *New TCP/IP Setting* dialog (FIG. 85).

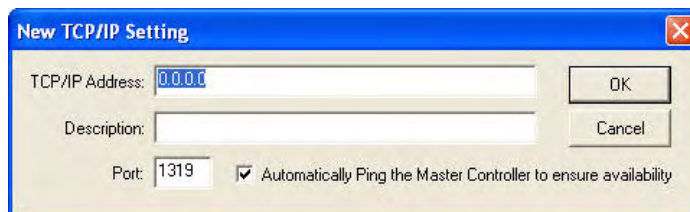


FIG. 85 NetLinx Studio - New TCP/IP Setting dialog

- Alternatively, select an IP address from the *List of Addresses* and click **Edit** to alter its properties via the *Edit TCP/IP Properties* dialog (FIG. 86).

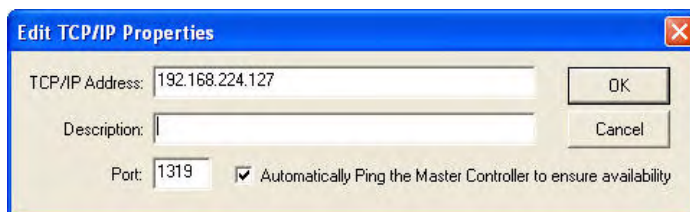


FIG. 86 NetLinx Studio - Edit TCP/IP Properties dialog

9. Click **OK** to close all open dialogs and save your settings.

10. When the *Master Communication Settings* dialog is closed after changing settings, NetLinx Studio prompts you with the following warning dialog (FIG. 87):

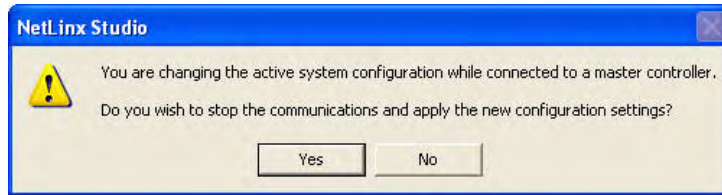


FIG. 87 NetLinx Studio - warning dialog

This is to alert you to the fact that configuration settings for an active system have been changed, while connected to a NetLinx Master.

In order for the new settings to be applied, communications between the PC and the Master will be stopped, then restarted using the new settings.

Click **Yes** to interrupt the current communication from the Master and apply the new settings.

11. Open the *Reboot the Master Controller* dialog (Tools > Reboot the Master Controller), and click **Reboot** to reboot the NetLinx Master and incorporate any changes (FIG. 88).

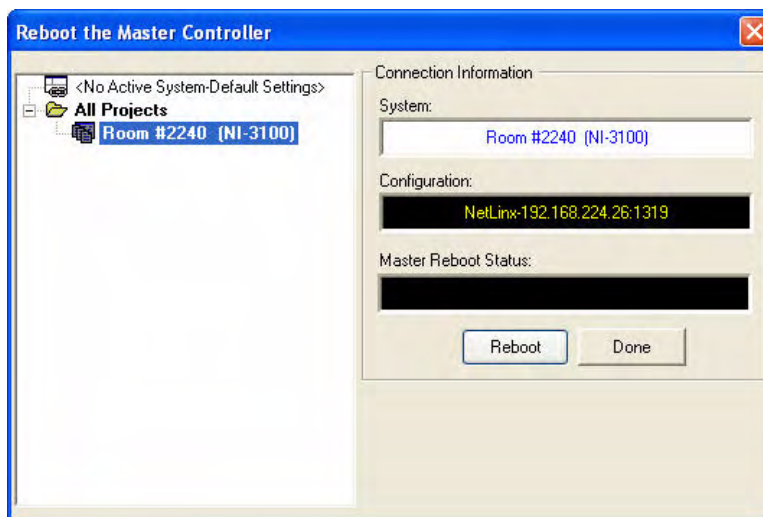


FIG. 88 NetLinx Studio - Reboot the Master Controller dialog

12. When the dialog box replies with "*Reboot of system complete*", press **Done**.
13. Click the **OnLine Tree** tab in the Workspace window to view the devices on the System. The default System value is 1 (one).
14. Right-click the **Empty Device Tree/System** entry, and select **Refresh System** to re-populate the list.

2) Prepare the TPI-PRO/DVI for Ethernet Communication

1. Open the *System Settings* page on the TPI-PRO/DVI:
 - a. Press the **SETUP** pushbutton on the front panel to access the *Setup* page.
 - b. Press the **Protected Setup** button to access the *Protected Setup* page, using the on-screen keypad to enter the password (default = **1988**).
 - c. Press the **System Settings** button to open the *System Settings* page (FIG. 89).

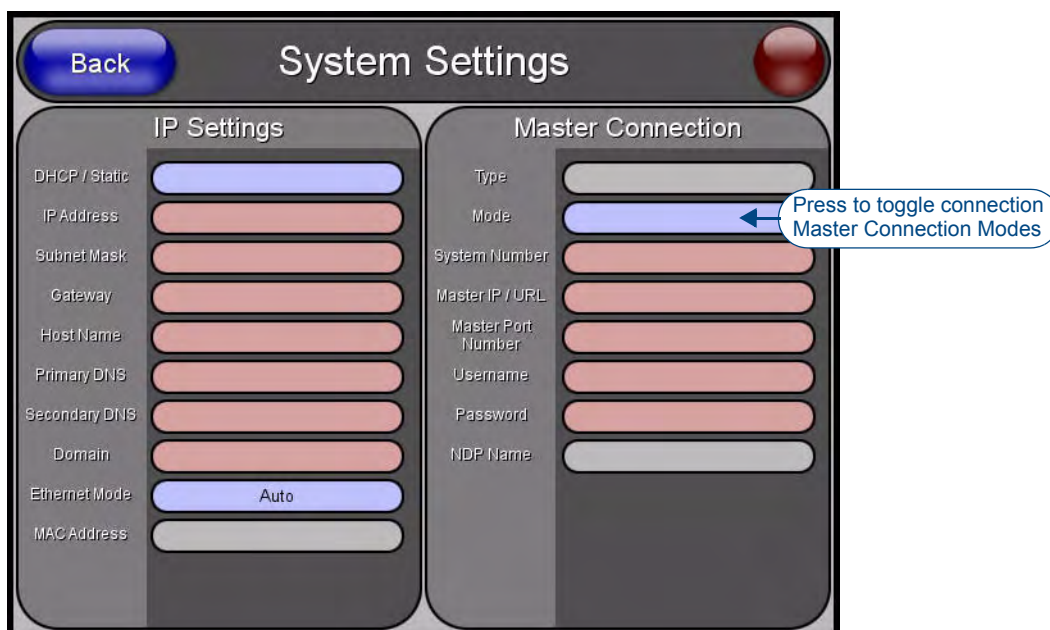


FIG. 89 System Settings page

2. Press the **Master IP/URL** button to open the on-screen keyboard, and enter the Master's IP address or URL. This information can be obtained from the *Networking Addresses* dialog in NetLinx Studio:
 - a. In NetLinx Studio, select **Diagnostics > Network Addresses** to open the *Network Addresses* dialog (FIG. 90).

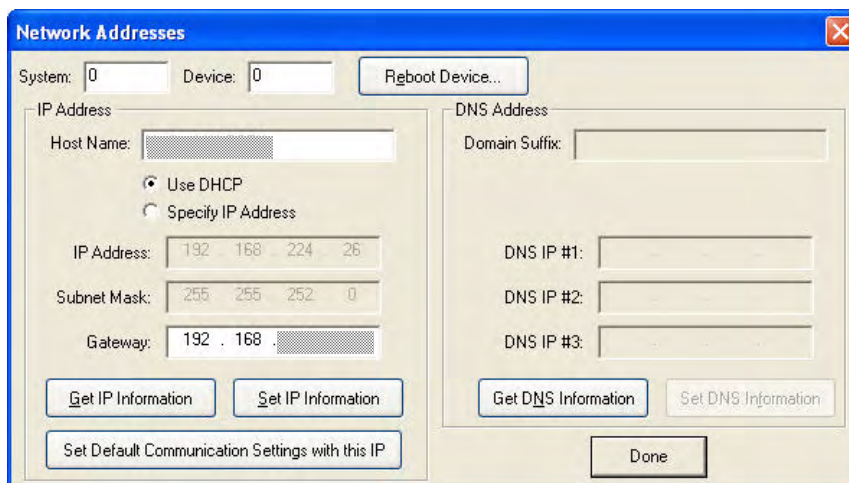


FIG. 90 NetLinx Studio - Network Addresses dialog

- b. Click **Get IP Information** to retrieve IP information from the NetLinx Master.

3. Click **Done** to accept the new value and return to the *System Settings* page.



Do not alter the Master Port Number value (1319). This default value is used by NetLinx.

4. **Reboot** the TPI-PRO/DVI (see the *Rebooting the TPI-PRO/DVI* section on page 54).

3) Upgrade the TPI-PRO/DVI Firmware

Check www.amx.com for the latest firmware (*.KIT file) for the TPI-PRO/DVI. Firmware updates are available for registered AMX Dealers to download from the *Tech Center* section of the website.

1. Use the **OnLine Tree** in NetLinx Studio to view the devices on the System. Verify the TPI-PRO/DVI appears in the OnLine Tree tab of the Workspace window (FIG. 91).

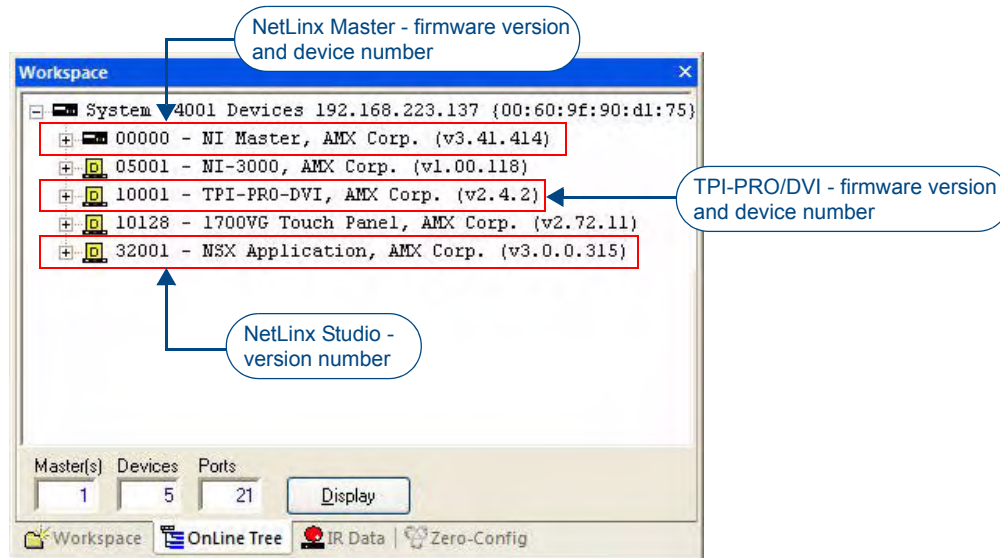


FIG. 91 NetLinx Workspace window (showing connected TPI-PRO/DVI)

- Click on the **Display** button to open the Online Tree context menu, and select **Refresh System** to refresh the device tree.
 - The default System value is **1**.
 - The default TPI-PRO/DVI device number is **10001**.
2. Download the appropriate firmware (*.KIT) file to your PC.
 3. In NetLinx Studio select **Tools > Firmware Transfers > Send to NetLinx Device** to open the *Send to NetLinx Device* dialog (FIG. 92).

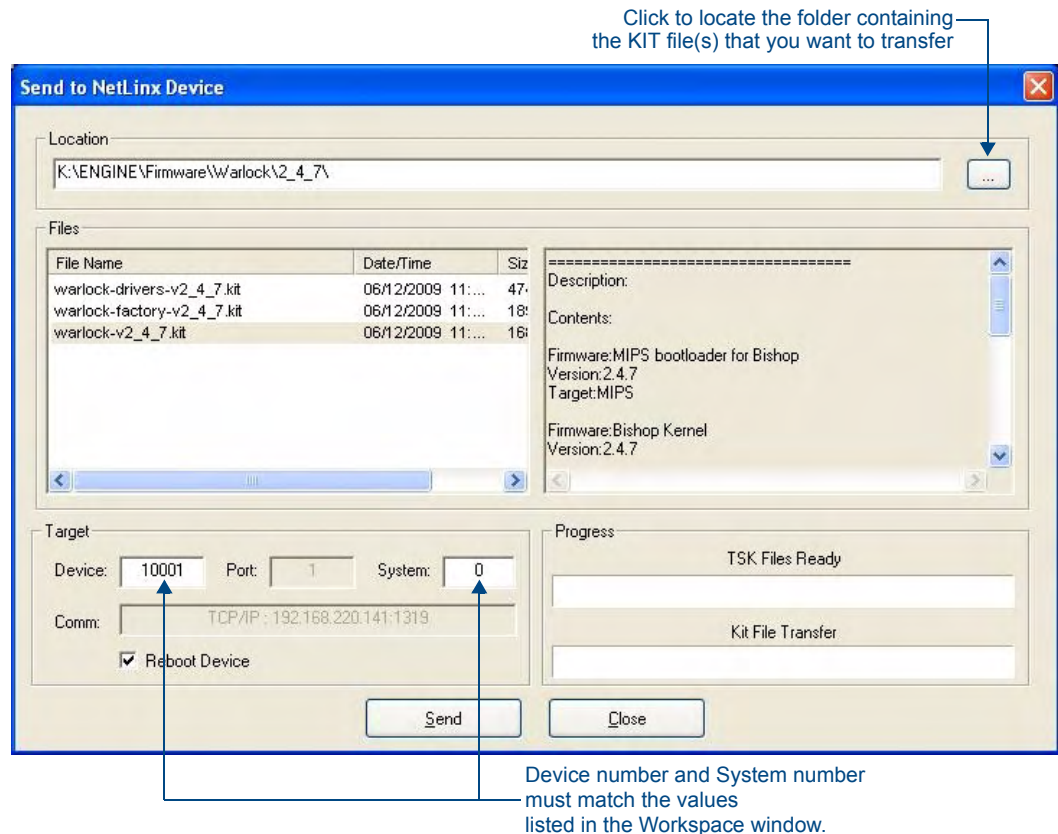


FIG. 92 Send to NetLinX Device dialog box (showing TPI-PRO/DVI firmware update via IP)

- a. Click the Browse (...) button to locate and selected the directory to which the KIT file was downloaded, via the *Browse For Folders* dialog.
- b. Select the TPI-PRO/DVI's .KIT file from the *Files* list
- c. Enter the *Device* and *System* numbers for the target TPI-PRO/DVI. These values must match the values listed in the Online Tree.
- d. Click **Reboot Device** to force the TPI-PRO/DVI to reboot after the firmware update process is complete.



A reboot can take up 30 seconds after the firmware process has finished.

- e. Click **Send**. The file transfer progress is indicated in the Progress area of this dialog.
4. Click **Close** after the TPI-PRO/DVI reboots.

Using G4 Web Control®

Overview

G4 Web Control allows you to use a PC to interact with an AMX G4 Touch Panel (including the TPI-PRO/DVI) via the web. The TPI-PRO/DVI can support up to four simultaneous G4 Web Control connections.

- Refer to the *Protected Setup - G4 Web Control Page* section on page 77 for descriptions of all of the options on the *G4 Web Control* page.
- Refer to the *NI Series NetLinx Integrated Controllers WebConsole & Programming Guide* for more detailed information on NetLinx Security.
- Verify your NetLinx Master has the latest firmware (*.KIT) file loaded.
- Verify your NetLinx Master's IP Address and System Number have been properly entered into the Master Connection section of the *System Settings* page (see the *Configuring the Master Connection Settings* section on page 42).

1. Open the *G4 Web Control* page (FIG. 93):



FIG. 93 G4 Web Control page

- a. Press the front panel SETUP pushbutton to open the *Setup* page.
 - b. Press **Protected Setup** to open the *Protected Setup* page. This page is password-protected:
 - Use the on-screen keypad to enter the default password - **1988**.
 - Press **Done** to close the keypad.
 - c. Press **G4 Web Control** to open the *G4 Web Control* page.
2. Press **Enable/Enabled** until it toggles to **Enabled** (as shown in FIG. 93).



*The Network Interface Select field is read-only - the TPI-PRO/DVI uses "Wired" as the default method of communication to the web.
The "Wireless option" is unavailable for the TPI-PRO/DVI.*

3. Enter a G4 Authentication session password:
 - a. Press the **Web Control Password** field to open the on-screen keyboard.
 - b. Enter a unique alpha-numeric string, and press **Done** after you are finished.

This password is saved as the G4 Authentication session password, associated with VNC web access of this TPI-PRO/DVI.
4. Enter the port number of the Port on the TPI-PRO/DVI that the VNC Web Server is running on:
 - a. Press the **Web Control Port** field to open the on-screen keypad.
 - b. Enter a unique numeric value to be assigned to the port that the VNC Web Server is running on, and press **Done** after you are finished.

The default Web Control Port is **5900**.



The remaining fields in the G4 Web Control Settings section are read-only. The name that appears in the Web Control Name field is the device name entered in the main Protected Setup Page (as the "Device Name") - see the Protected Setup Page section on page 71.

5. Press the **Up/Down** arrows to adjust the *G4 Web Control Timeout* value. This value determines the amount of time the TPI-PRO/DVI can remain idle (no cursor movements) before the VNC session is closed and the user is disconnected.
6. Press the **Back** button to open the *Protected Setup* page.
7. **Reboot** the TPI-PRO/DVI (see the *Rebooting the TPI-PRO/DVI* section on page 54).

Using the NetLinx Master to Control the TPI-PRO/DVI

Before you begin:

- Verify your NetLinx Master has the latest firmware (*.KIT) file loaded.
 - Set the Master's IP Address via NetLinx Studio (version 2.8 or higher).
1. Launch your web browser and enter the IP address of the target NetLinx Master into the Address field.
 2. Press the **Enter** key on your keyboard to begin the communication process between the Master and your PC.
 - Initially, the *Master Security* option is disabled, therefore a Username and Password are not required for access or configuration.
 - Both HTTP and HTTPS Ports are enabled by default.
 3. If the Master has been configured for secured communication, click **OK** to accept the AMX SSL certificate (if SSL is enabled) and then enter a valid Username and Password into the fields in the *Login* dialog.
 4. Click **OK** to enter the information and access the Master's WebConsole (*Manage WebControl Connections* page).
 5. Click on **Manage connections** to access the *Manage WebControl Connections* page (FIG. 94). This page displays links to G4 Touch Panels running the G4 Web Control feature (which was previously setup and activated on each Touch Panel).



FIG. 94 Manage WebControl Connections page (indicating one compatible panel)

6. Click **Yes** in the *Security Alert* popup to agree to the installation of the G4 WebControl application on your computer (FIG. 95).

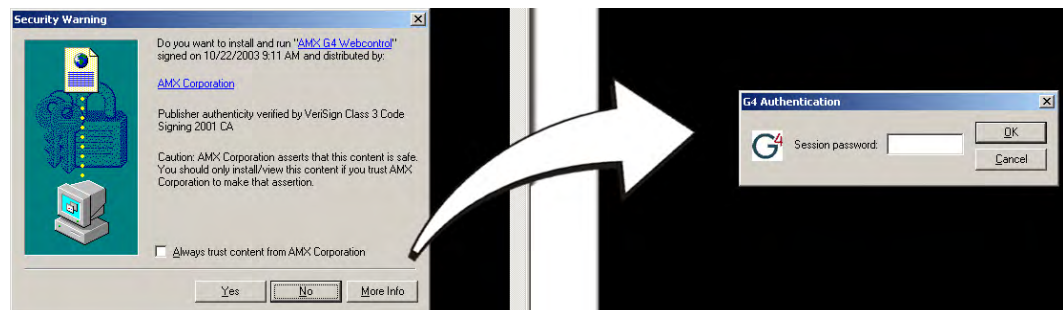


FIG. 95 Web Control VNC installation and G4 Authentication Session Password entry

- The G4 Web Control application is sent by the TPI-PRO/DVI to the PC that is used for communication. Once the application is installed on the PC, this popup will no longer appear.
 - The G4 Web Control application contains the necessary Active X and VNC client applications necessary to properly view and control the unit's pages from your computer.
7. Click on the G4 Touch Panel link associated with the target panel (see FIG. 94). This invokes a secondary browser window.
 8. In the *Connection Details* dialog box (FIG. 96), enter the VNC Server IP Address.

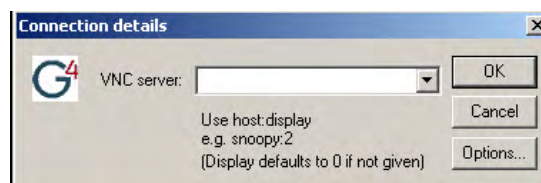


FIG. 96 Connection Details dialog



This is not the IP address of the Master, but the IP address of the target touch panel. You can find the IP address in the Wired Ethernet - System Connection > IP Settings section.

9. If you setup a WebControl password on the G4 WebControl page, a *G4 Authentication* dialog appears in the secondary browser window (FIG. 97).



FIG. 97 G4 Authentication dialog

10. Enter the Web Control session password into the Session password field (FIG. 95).
This password was previously entered into the Web Control Password field in the G4 Web Control page on the TPI-PRO/DVI (see FIG. 93 on page 165).
11. Click **OK** to send the password to the TPI-PRO/DVI and begin the session. A confirmation message appears stating *"Please wait, Initial screen loading..."*
 - The secondary window becomes populated with the same G4 page being displayed on the target G4 panel.
 - A small circle appears within the on-screen G4 panel page and corresponds to the location of the mouse cursor.
 - A left-mouse click on the computer-displayed panel page equates to an actual touch on the target G4 panel page.

Using Takenote™

Overview

The TakeNote application allows you to create on-screen annotations over the displayed video sources, using a Pointing device (i.e. USB mouse or touch screen) connected to a TPI-PRO or TPI-PRO-DVI.

- Refer to the *Protected Setup - TakeNote Control Page* section on page 85 for descriptions of all of the options on the *TakeNote Control* page.
- Verify your NetLinX Master has the latest firmware (*.KIT) file loaded.
- Verify your NetLinX Master's IP Address and System Number have been properly entered into the Master Connection section of the *System Settings* page (see the *Configuring the Master Connection Settings* section on page 42).

Enabling TakeNote on the TPI-PRO/DVI

The TakeNote feature of the TPI-PRO/DVI must be enabled before TakeNote can be used:

1. Open the *TakeNote Control* page (FIG. 98):

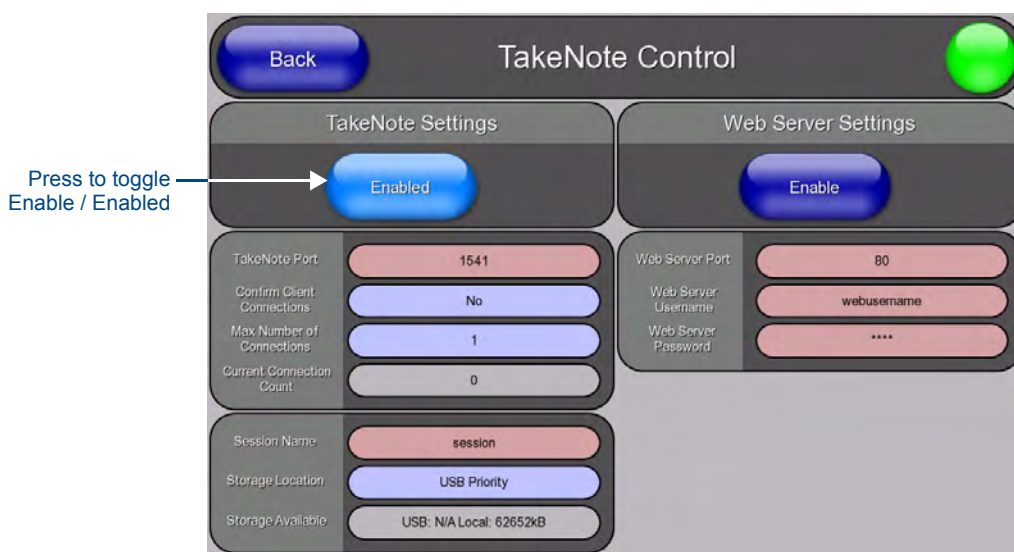


FIG. 98 TakeNote Control page

- a. Press the front panel SETUP pushbutton to open the *Setup* page.
 - b. Press **Protected Setup** to open the *Protected Setup* page. This page is password-protected:
 - Use the on-screen keypad to enter the default password - **1988**.
 - Press **Done** to close the keypad.
 - c. Press **TakeNote** to open the *TakeNote Control* page.
2. Press **Enable/Enabled** until it toggles to **Enabled** (as shown in FIG. 98).

Starting a TakeNote Session

Once TakeNote has been Enabled, it is ready to use:

1. Click **Back** in the Protected Setup page to return to the Setup Page.
2. Click **Exit** in the Setup Page to close the Setup page.
3. When TakeNote is enabled, the TakeNote icon is displayed in the upper-right corner of the display area (FIG. 99):



Press to access the TakeNote menu bar

FIG. 99 TakeNote icon

4. Click this icon to access the TakeNote menu bar, which provides access to all TakeNote annotation tools, in the TakeNote Menu Bar.
5. Use the options in the TakeNote Menu Bar to perform various types of on-screen annotations, using the pointing device (i.e. mouse) and keyboard connected to the TPI-PRO/DVI.

TakeNote Menu Bar

The options in the TakeNote Menu Bar (FIG. 100) are described below:

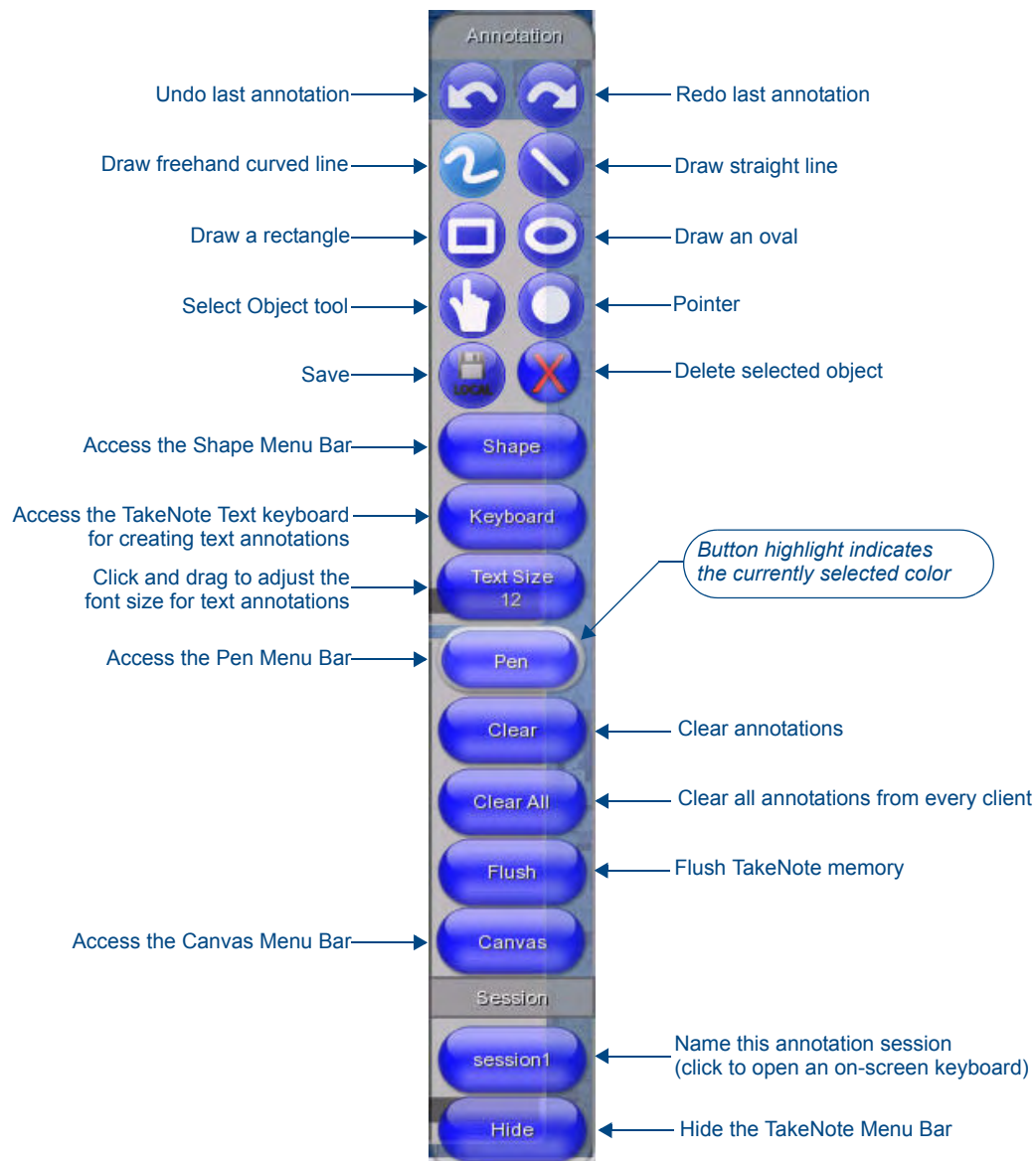


FIG. 100 TakeNote Menu Bar - detailed view

Drawing Annotation Tools

The top portion of the TakeNote Menu Bar contains the main annotation tool set (FIG. 101):

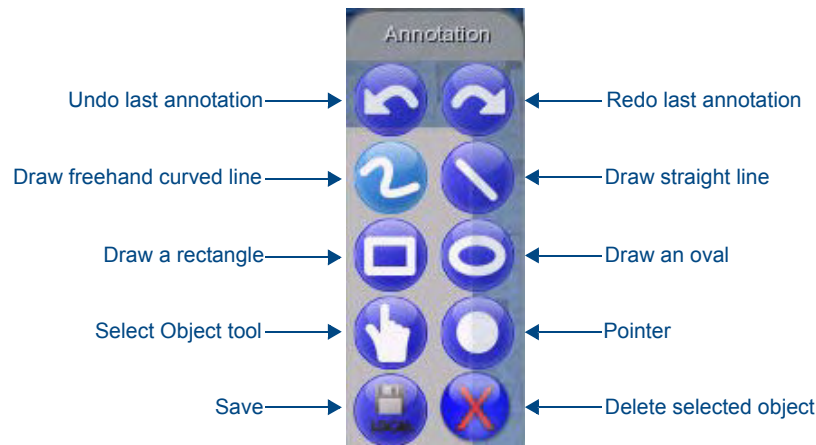


FIG. 101 TakeNote Menu Bar - Annotation Tools

Undo / Redo Last Action

Press the Undo and Redo buttons to undo or redo the last annotation action. Press these buttons repeatedly to undo or redo the last several actions.

Drawing a Freehand Curved Line



*All Pen settings (line Type, Width, Color and Opacity) must be set in the Pen Options Menu Bar **before** drawing the line - once the line is drawn, these settings cannot be changed. Refer to the Pen Options Menu Bar section on page 179 for details.*

1. Select the Freehand Curved Line tool from the TakeNote Menu Bar (see FIG. 101).
2. Using touch, the mouse (or other pointing device), draw as desired. The line is drawn on-screen, using the current Pen settings, as set in the Pen Menu Bar.

Drawing a Straight Line

1. Select the Straight Line tool from the TakeNote Menu Bar (see FIG. 100 on page 170).
2. Using touch, the mouse (or other pointing device), draw as desired. The line is drawn on-screen, using the current Pen settings, as set in the Pen Menu Bar. Refer to the *Pen Options Menu Bar* section on page 179 for details.

Drawing a Rectangle

1. Select the Rectangle tool from the TakeNote Menu Bar (see FIG. 100 on page 170).
2. Using touch, the mouse (or other pointing device), draw as desired. The rectangle is drawn on-screen, using the current Pen settings, as set in the Pen Menu Bar. Refer to the *Pen Options Menu Bar* section on page 179 for details.

Drawing an Oval

1. Select the Oval tool from the TakeNote Menu Bar (see FIG. 100 on page 170).
2. Using touch, the mouse (or other pointing device), draw as desired. The oval is drawn on-screen, using the current Pen settings, as set in the Pen Menu Bar. Refer to the *Pen Options Menu Bar* section on page 179 for details.

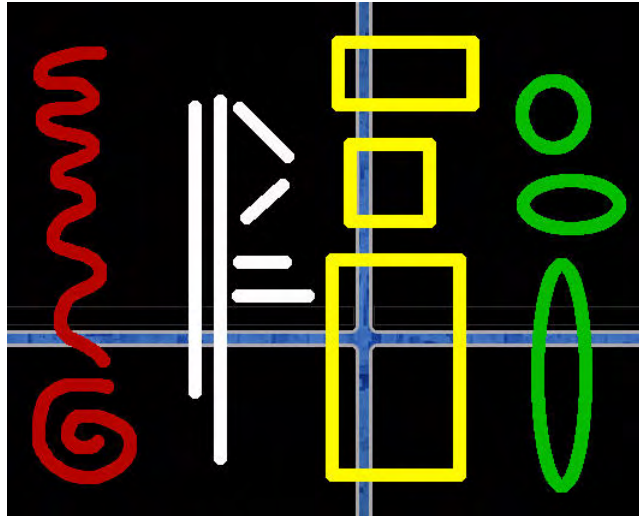


FIG. 102 Drawing annotations examples (Curved Line, Straight Lines, Rectangles, Ovals)



All lines, shapes and text annotations are treated as Objects in TakeNote. Once they are on-screen, each line can be selected to move or delete, using the Select Object tool.

Use the options in the Shape Menu Bar (see FIG. 108 on page 175) to draw triangles, diamonds and hexagons (see the *Shape Options Menu Bar* section on page 175 for details).

Using the Select Object Tool

All lines, shapes and text annotations are treated as Objects in TakeNote. Once they are on-screen, each line can be selected to move or delete, using the Select Object tool.

Use the **Select Object** tool to select any annotation object (Line, Shape or Text) on the screen (FIG. 103).



Select Object tool

Curved Line
object selected

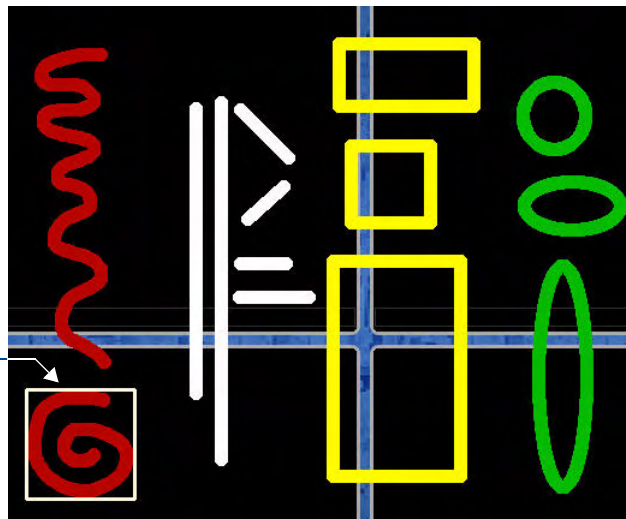


FIG. 103 Drawing annotations examples (Curved Line object selected)

Once selected, the object can be moved or deleted (see below).

Moving a TakeNote Annotation Object

1. Use the **Select Object** tool to select any TakeNote annotation object (line, shape or text) on the screen.
2. Click and drag the selected object to move as desired.

Deleting a TakeNote Annotation Object

1. Use the **Select Object** tool to select any TakeNote annotation object (line, shape or text) on the screen.
2. Press the **Delete** button (FIG. 104).

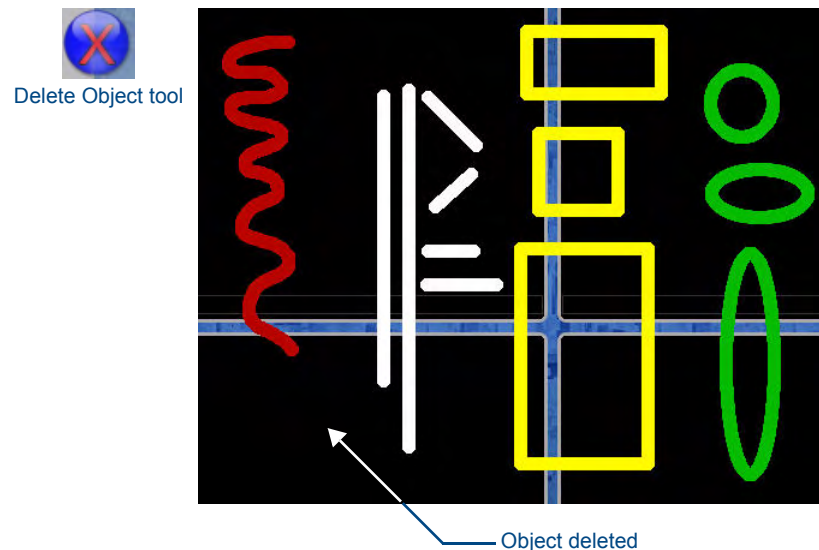


FIG. 104 Drawing annotations examples (Curved Line object deleted)

Using the Pointer

Select the Pointer tool to place a "pointer" on the screen, in the form of a colored dot that can be moved on-screen via the pointing device (i.e. the mouse). The pointer is displayed only when the primary select button on the pointing device is enabled (i.e. the left mouse button is clicked, or the touchscreen is touched).

This allows you to point to specific areas on-screen, without drawing lines or leaving any annotations on-screen (FIG. 105).

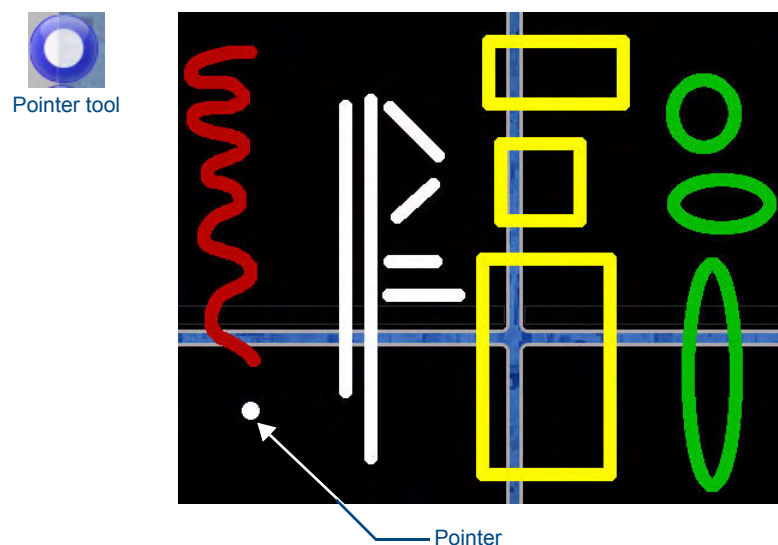


FIG. 105 Drawing annotations examples (Pointer)

To change the color of the pointer, select a color from the Pen Option Menu Bar (see the *Pen Options Menu Bar* section on page 179).

Using the Save Tool

The Save tool (FIG. 106) allows you to capture and save screen images from the TakeNote session.



FIG. 106 Save Tool

Capturing and Saving the Screen Image

Press the **Save** button to capture the current screen image, including all visible annotations, and save the captured image to either a USB stick or to the TPI-PRO/DVI's internal disk drive.

By default, the TPI-PRO/DVI is configured to save captured TakeNote screen images to a USB stick inserted into any of the USB (Type A) Input ports.

To save captured TakeNote screen images to a USB stick:

1. Insert a USB stick into any of the USB (Type A) Input ports on the TPI-PRO/DVI. (see the *Wiring and Device Connections* section on page 15).

The TPI-PRO/DVI automatically detects the first USB stick to be inserted into any of the USB (Type A) Input ports (two available on the front panel, two more available on the rear panel - refer to FIG. 4 and FIG. 5 on page 15).

2. Press the **Save** button on the Main TakeNote Menu Bar. This action will cause the screen to refresh.
3. Once the screen has refreshed, the captured screen image has been saved to the USB Stick.
 - Images are saved as JPG files.
 - Images are named according to the TakeNote session name, followed by a timestamp of the time and date the image was saved.

Changing the Storage Location For Captured TakeNote Screen Images

The screen image will be saved according to the settings specified in the TakeNote Control (Protected Setup) page:

1. Open the *TakeNote Control* page (FIG. 98):

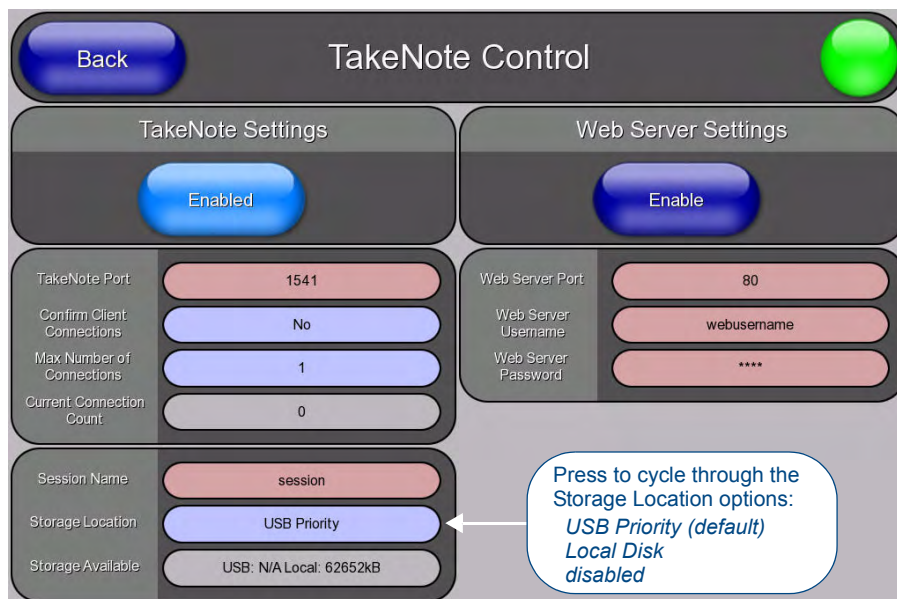


FIG. 107 TakeNote Control page

2. Press the **Storage Location** button to cycle through the options:

- **USB Priority** (default) - This setting saves the image to a USB stick inserted into any of the USB Type A Input ports on the TPI-PRO/DVI. The TPI-PRO/DVI supports a single USB Stick at a time.
- **Local Disk** - This setting saves the image to the TPI-PRO/DVI's internal disk. Images saved to the TPI-PRO/DVI's internal drive can be managed via the TakeNote Web Application - see the *Using The TakeNote Web Application* section on page 182 for information.
- **disabled** - This option disables the Save feature.

Shape Options Menu Bar

Click the **Shape** button in the TakeNote Menu Bar (see FIG. 100 on page 170) to access the Shape Menu Bar shown in FIG. 108:

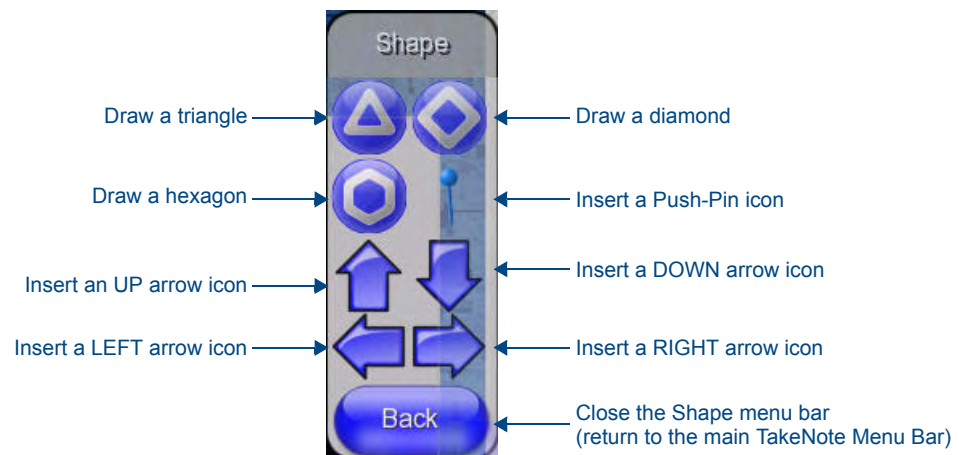


FIG. 108 TakeNote - Shape Menu Bar

Drawing a Shape

Select one of the shape icons (triangle, diamond or hexagon), then click-and-drag to draw the selected shape:

- **Triangles** - The triangle tool draws isosceles triangles, with a straight line at the bottom relative to the cursor position (FIG. 109):

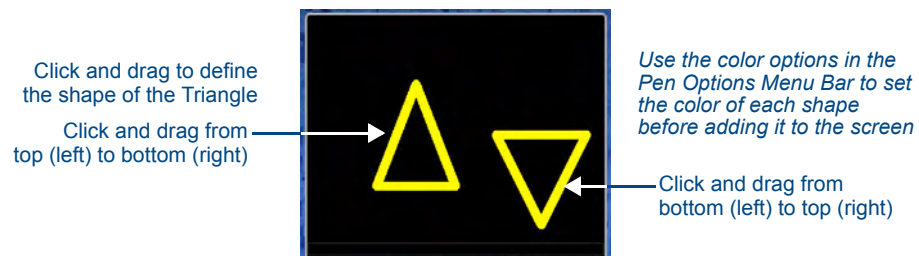


FIG. 109 Drawing Triangles

- **Diamonds** - The diamond tool draws equilateral diamonds (FIG. 110):

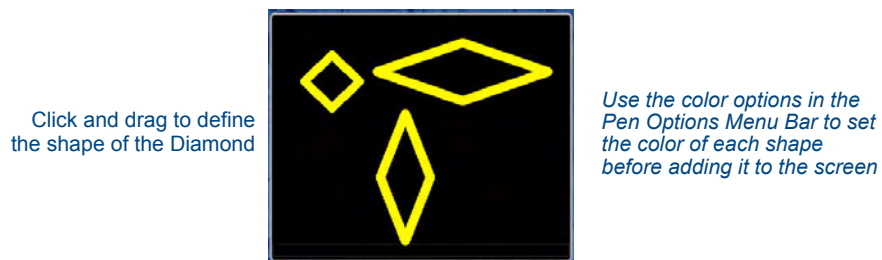


FIG. 110 Drawing Diamonds



Use the Rectangle tool (see FIG. 101 on page 171) to draw squares and rectangles.

- **Hexagons** - The diamond tool draws equilateral hexagons (FIG. 111):

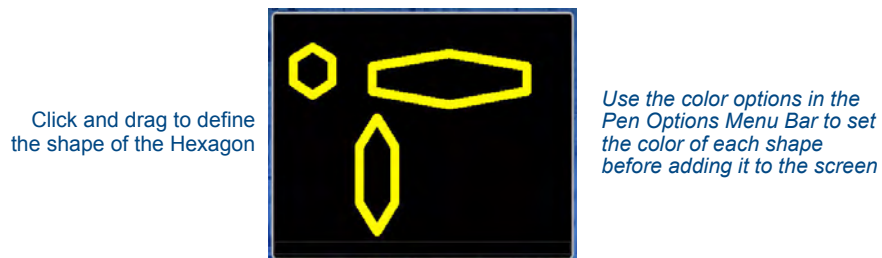


FIG. 111 Drawing Hexagons

Inserting a Push-Pin Icon

Select the Push-Pin button and click on the screen to draw a push-pin icon at the cursor location (FIG. 112):

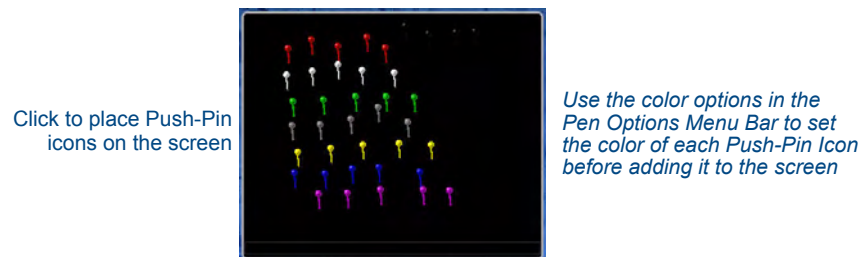


FIG. 112 Adding Push-Pin Icons

Inserting an Arrow Icon

Select an Arrow button and click on the screen to draw an arrow icon at the cursor location (FIG. 113):

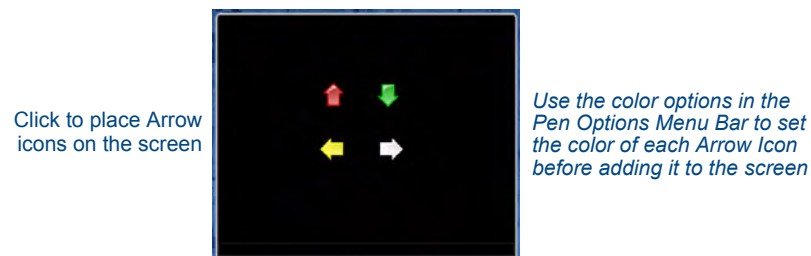


FIG. 113 Adding Arrow Icons



Arrow and Push-Pin icons are drawn using the color that is currently selected in the Pen Options Menu Bar. To place different colors of icons, select the Push-Pin or Arrow icon tool, then open the Pen Options Menu Bar. This allows you to change the color of the icons before placing each one on the screen.

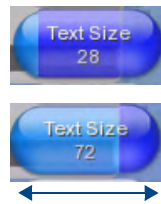
Text Annotation Tools



All Text settings (text Size, Color and Opacity) must be set **before** entering the text - once the text is drawn, these settings cannot be changed.

Text Size Button

Click-and-drag on the **Text Size** button in the TakeNote Menu Bar (FIG. 114) to set the font size for text annotations:



Click-and-drag to adjust

FIG. 114 Text Size button

The range for Text Size is 12- 96 (points).

TakeNote Text Keyboard

Click the **Keyboard** button in the TakeNote Menu Bar (see FIG. 100 on page 170) to access the TakeNote Text Keyboard shown in FIG. 115:

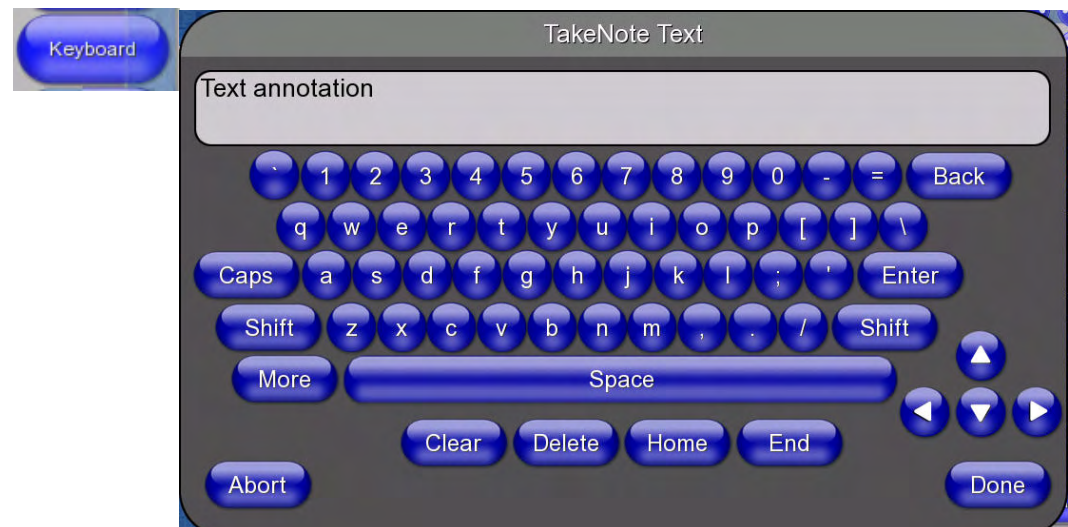


FIG. 115 TakeNote Text Keyboard

Use this keyboard to create and edit text annotations. To type, press on each letter or symbol button and click **Done** when finished.

- Press **Caps** to toggle all characters to upper-case, press again to return to lower-case.
- Press **Shift** to shift all characters to upper-case for the next typed character only.
- Press **More** to toggle an alternative keyboard featuring various special symbols, press again to return to the normal character set.
- Press **Clear** to clear all characters.
- Press **Delete** to delete the character at the cursor position.
- Press **Home** to place the cursor at the beginning of the text line; press **End** to jump to the end of the line.
- Use the UP/DOWN/LEFT/RIGHT arrow buttons to move the cursor within the text box.
- Press **Done** to close the Keyboard, placing the entered text on-screen.

Creating Text Annotations

1. Set the text Size by clicking and dragging on the **Text Size** button (range = 12-96).
2. Set the text Color and Opacity using the options in the Pen Options Menu Bar (refer to the *Pen Options Menu Bar* section on page 179).
3. Press the **Keyboard** button to open the TakeNote Text Keyboard (see FIG. 115 on page 177).
4. Press the character buttons on the on-screen keyboard. The entered text is displayed in the Text Window of the Keyboard.
5. When finished entering the text that you want to appear on-screen, press **Done** to close the keyboard.
6. The text is displayed on-screen (FIG. 116).

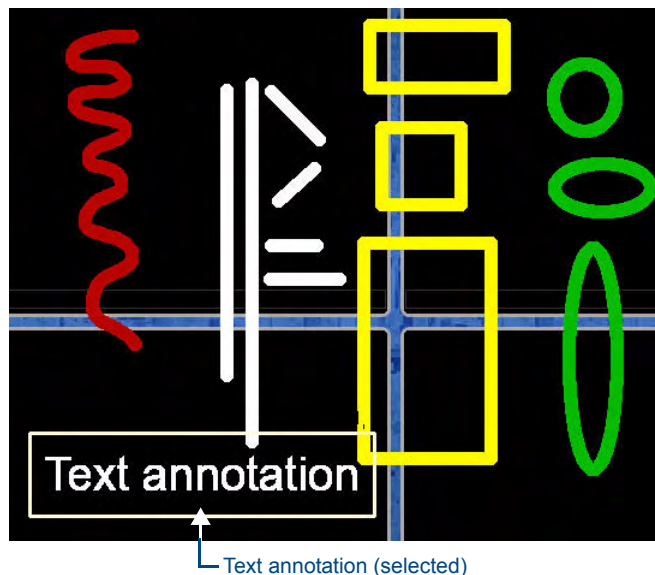


FIG. 116 Text annotations example

7. Note that the newly created text annotation is selected, when it is added to the screen. This is to allow you to position the text annotation object without having to use the Select Object tool. Click-and-drag to move the text annotation object to the desired position, and click anywhere to place the text.



All lines, shapes and text annotations are treated as Objects in TakeNote. Once they are on-screen, each line can be selected to move or delete, using the Select Object tool.

Moving Text

To move the text annotation object once it is displayed on the screen:

1. Select the **Select Object** tool from the main TakeNote Menu Bar (see the *Using the Select Object Tool* section on page 172).
2. Select the text, and drag it to the desired location on the screen.

Pen Options Menu Bar

Click the **Pen** button in the TakeNote Menu Bar (see FIG. 100 on page 170) to access the Pen Options Menu Bar FIG. 117:

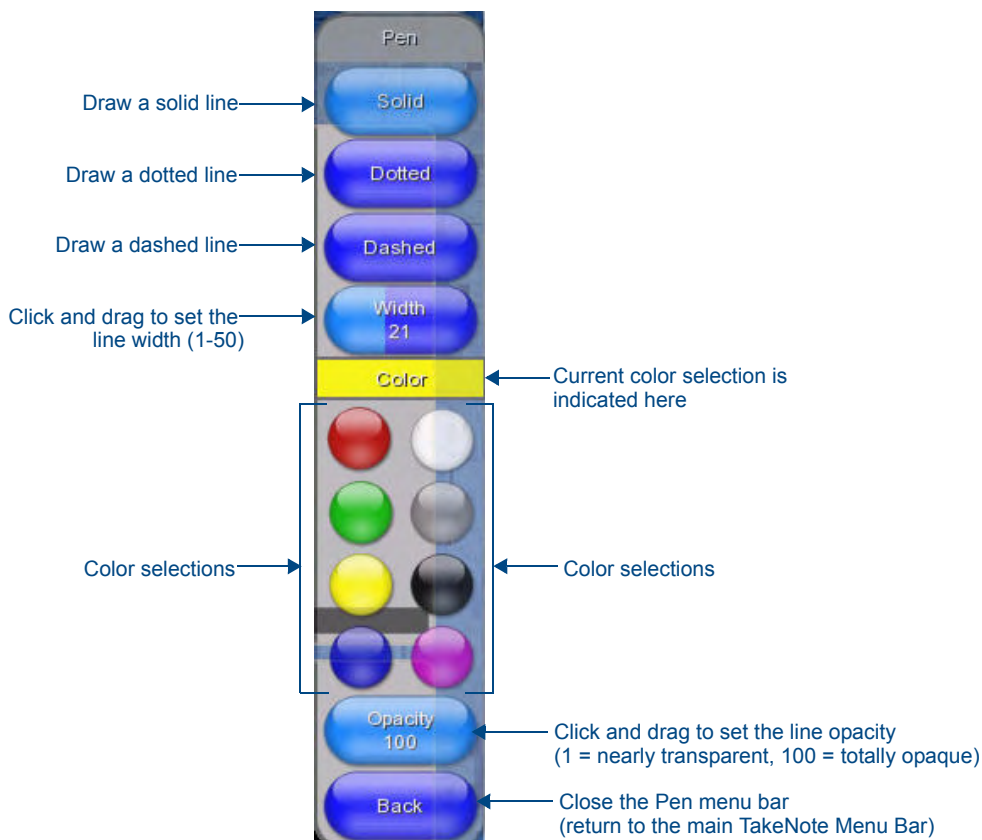


FIG. 117 Pen Options Menu Bar

Note that the settings made in the Pen Options Menu Bar can affect all types of annotations:

- The Line attributes (*Type, Width, Color and Opacity*) affect all types of lines, curves and shapes. For example, if you have selected *Dotted* as the line Type, *Yellow* as the line Color, "10" as the line Width, and Opacity set to "50", then all lines (including the lines used to draw shapes) will be yellow dotted lines with a width of 10 and opacity of 50, until these attributes are changed.
- The *Color* and *Opacity* settings also apply to Text annotations.



*All Pen settings must be set **before** drawing the line, shape or entering the text - once the annotation object is drawn, these settings cannot be changed.*

Clearing Annotations

- Press **Clear** to clear all annotations from the screen, for this client only. In this case, you can bring the annotations back by using the Undo function (see the *Undo / Redo Last Action* section on page 171).
- Press **Clear All** to clear all annotations from the screen, for all clients. In this case, each client can bring its annotations back by using the Undo function (see the *Undo / Redo Last Action* section on page 171).
- Press **Clear/Flush** to clear all annotations from the screen for all clients, as well as flush the undo stack. In this case, all annotations are permanently cleared from the TPI-PRO/DVI (no Undo).

Canvas Options Menu Bar

Press the **Canvas** button on the TakeNote Menu Bar to access the Canvas Options Menu Bar (FIG. 118):

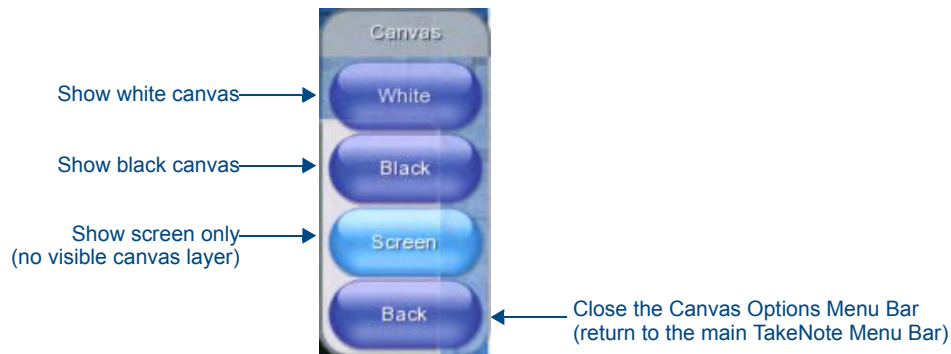


FIG. 118 Canvas Options Menu Bar

The options in this menu apply to the super-imposed drawing layer used by TakeNote for annotations.

- **White:** Press to use a white canvas (overlay).
- **Black:** Press to use a black canvas (overlay).
- **Screen:** Press to use a totally transparent overlay (default setting). In this case, the canvas is invisible.

Working With Opacity Settings

The Opacity setting can affect the performance of the TPI, as semi-transparent lines can place substantial demands on the processor.

Generally, semi-transparent lines should be used as sparingly as possible. The opacity settings are intended for minor highlighting, but not for large areas or complex drawings.

Session Tools

Naming the TakeNote Session

Click the **Session** button in the TakeNote Menu Bar (see FIG. 100 on page 170) to access the Session Name Keyboard shown in FIG. 119:

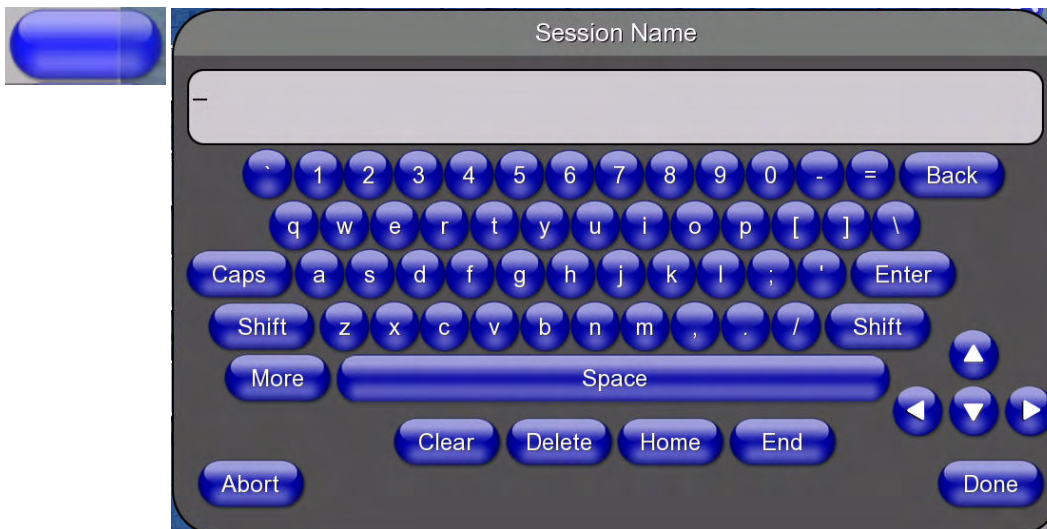


FIG. 119 Session Name Keyboard

Use this keyboard to enter a name for the current TakeNote session. To type, press on each letter or symbol button and click **Done** when finished.

The session name entered here will be used in two ways:

- It will appear in the *TakeNote Control* (Protected Setup) page (see FIG. 98 on page 169) in the *Session Name* field.
- It will be used as a prefix in the system-generated file names applied to all saved screen images. See the *Using the Save Tool* section on page 174 for details.

Hiding TakeNote

You can temporarily hide the TakeNote Menu Bar, TakeNote annotations, or both. Hiding TakeNote removes the TakeNote display from the screen, but does not delete any annotations.

Hiding the TakeNote Menu Bar

To hide the TakeNote Menu Bar while continuing to display annotations, press the **Hide** button. In this case, the annotations are displayed, but the Menu Bar is not.

In this state, you can bring back the TakeNote Menu Bar by pressing the **Annotation** button at the bottom of the screen. (FIG. 120):

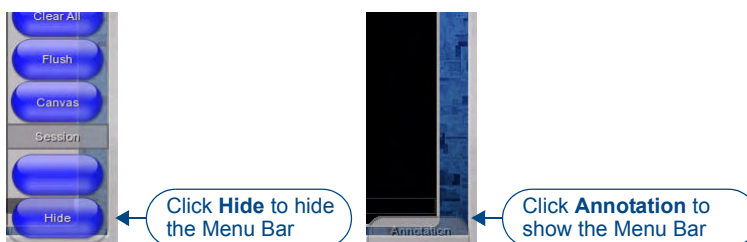


FIG. 120 TakeNote Menu Bar hidden

Hiding TakeNote Annotations

To hide the TakeNote Menu Bar and all annotations, press the **TakeNote** icon at the top of the Menu Bar.

In this state, you can bring back the TakeNote Menu Bar and all annotations by pressing the **TakeNote** icon a second time (FIG. 121):



FIG. 121 TakeNote Menu Bar and annotations hidden

Using The TakeNote Web Application

The TPI-PRO/DVI includes an internal web application for managing TakeNote screen images that have been captured and saved to the TPI-PRO/DVI's internal (local) disk drive.



By default, the TPI-PRO/DVI is configured to save captured TakeNote screen images to a USB stick inserted into any of the USB (Type A) Input ports. In order to save TakeNote images to the TPI-PRO/DVI's internal drive, you must change the Storage Location setting (in the TakeNote Control page) to Local Disk - see the Changing the Storage Location For Captured TakeNote Screen Images section on page 174 for details.

Launching the AMX TakeNote Web Application

1. Verify that the Web Server is enabled in the TakeNote Control page, as shown in FIG. 122.

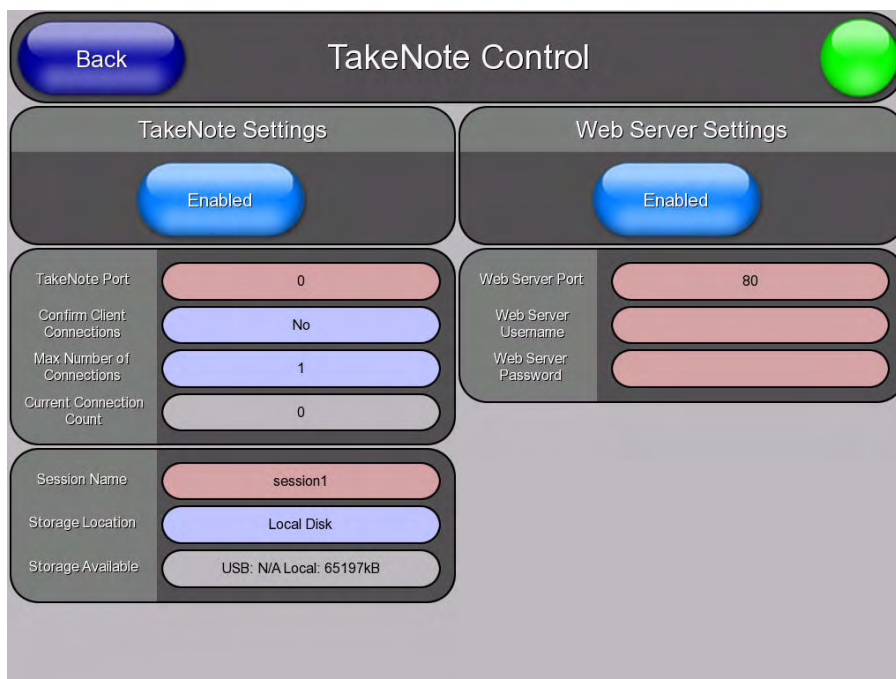


FIG. 122 TakeNote Control page - Web Server Enabled

2. From a PC connected to the LAN on which the TPI-PRO/DVI resides:

- a. Open a web browser.
 - b. Enter the TPI-PRO/DVI's IP Address in the browse window and press Enter.
 - c. If the target TPI has authentication requirements (*Web Server Username* and *Web Server Password*), the browser will prompt you for them before allowing a connection.
3. The AMX TakeNote application is opened in the browser window.

The AMX TakeNote Web Application User Interface

FIG. 123 shows the AMX TakeNote Web Application, and identifies the main features of the user interface:

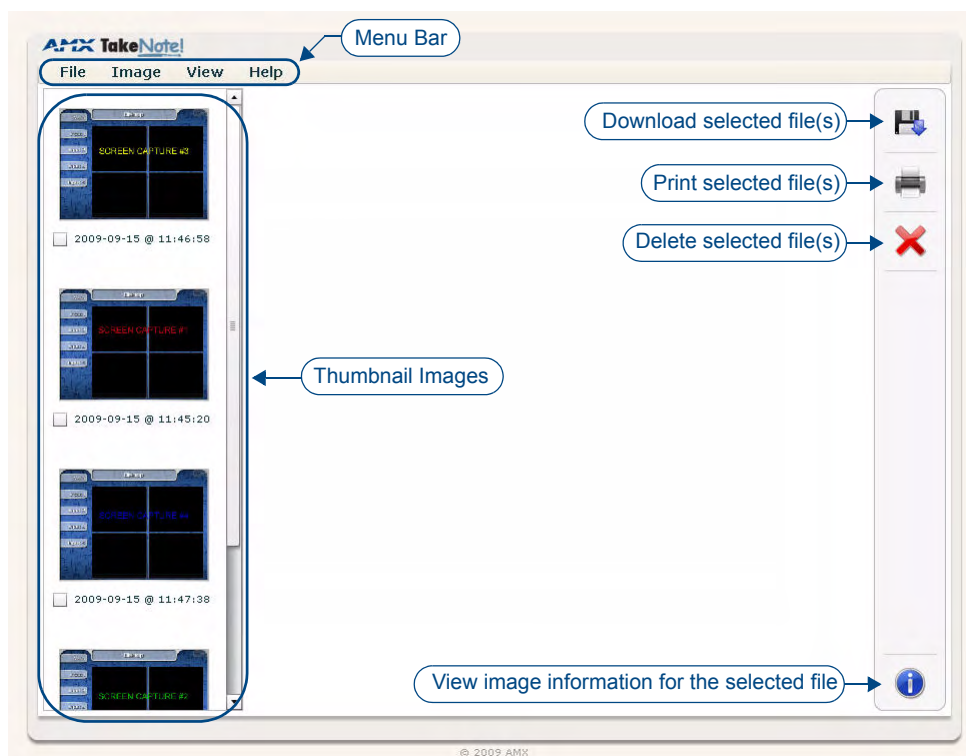


FIG. 123 AMX TakeNote web application

Menu Bar

The options in the Menu Bar include:

AMX TakeNote Menu Bar	
File Menu	
• Refresh:	Select to refresh the image list.
Image Menu	
• Download Image:	This option allows you to download selected the image to a local directory. The application will prompt you for a target directory for the file.
• Print Image:	This option allows you to print the selected image.
• Open Image In New Window:	This option opens the selected image in a new window (or tab) in your browser.
• Display Image Information:	This option displays the <i>Image Information</i> dialog, which provides detailed image/file information for the selected image.
• Delete Image:	This option deletes all selected (checked) images. The application will prompt you to verify this action before the image files are deleted from the TPI-PRO/DVI.

AMX TakeNote Menu Bar (Cont.)	
View Menu	
• Horizontal Thumbnails:	This option displays the Image Thumbnails in a horizontal window along the bottom of the application window.
• Vertical Thumbnails:	This option displays the Image Thumbnails in a vertical window along the left edge of the application window (default setting).
Help Menu	
• About	This option opens the About AMX TakeNote dialog, containing version and copyright information on the application
• AMX Website	This option opens the AMX Website (www.amx.com) in a new window (or tab) in your browser.

Thumbnail Images

Each image currently saved on the TPI-PRO/DVI's Local Disk is represented in the AMX TakeNote application with a thumbnail image (FIG. 124).



FIG. 124 Thumbnail Images

Each thumbnail provides a date and time stamp for the image file. For detailed image/file information, select an image and press the Information icon (in the lower-right corner of the application window), or select **Display Image Information** from the *Image* menu.

Note that each thumbnail also features a checkbox, which allows you to select multiple images for deletion.

Toolbar

The options in the Toolbar include:

AMX TakeNote Toolbar	
• Download:	With an image selected, press the <i>Download</i> button to download the image to a local directory. The application will prompt you for a target directory for the file. Pressing this button is the same as selecting <i>Download Image</i> from the Image menu.
• Print:	With an image selected, press the <i>Print</i> button to print the image to a selected printer. Pressing this button is the same as selecting <i>Print Image</i> from the Image menu.
• Delete:	With one or more images checked (see FIG. 124), press the <i>Delete</i> button to delete all checked images. The application will prompt you to verify this action before the image files are deleted from the TPI-PRO/DVI.
• Information:	With an image selected, press the <i>Information</i> button to display the <i>Image Information</i> dialog, which provides detailed image/file information.

Previewing Captured TakeNote Image Files

Select a thumbnail image to preview the image in the main window (FIG. 125):

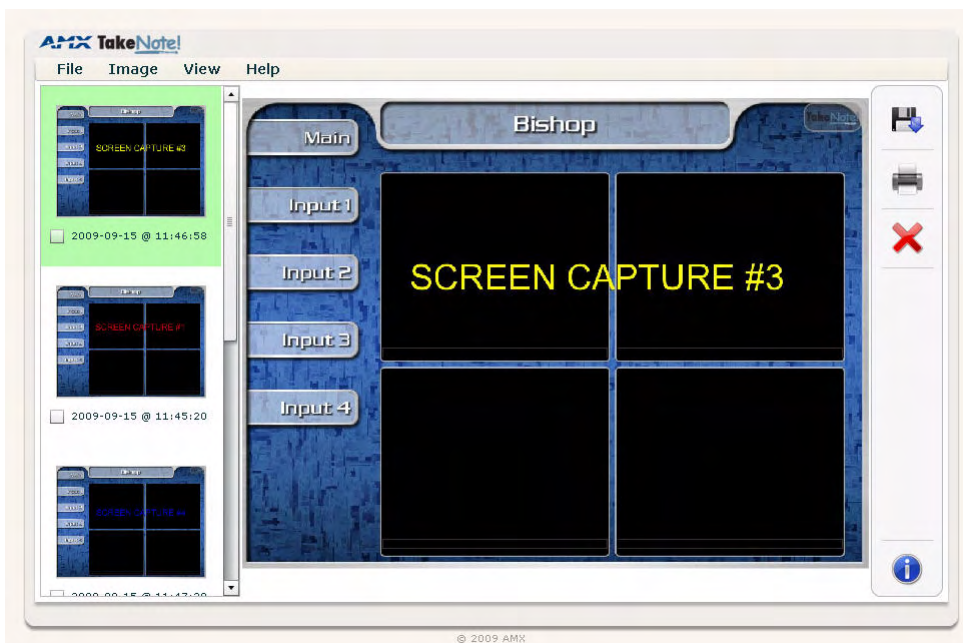


FIG. 125 Preview Image



NOTE

Hold the mouse cursor over the preview image to invoke a Image Information pop-up window.

Downloading Captured TakeNote Image Files To a Local Directory

1. Launch the AMX TakeNote Web application. If the application is already open, select **File > Refresh** to refresh the image list.
2. In the Thumbnail Images window, select a file that you want to save to a local directory on your PC or LAN.



NOTE

Image files must be downloaded one at a time (multi-selection is not supported for downloading files).

3. Press the **Download** button (FIG. 126).



FIG. 126 Download button

Alternatively, select **Image > Download Image** from the Menu Bar.

4. The application prompts you to specify a target directory for the image (.JPG) file (FIG. 127):

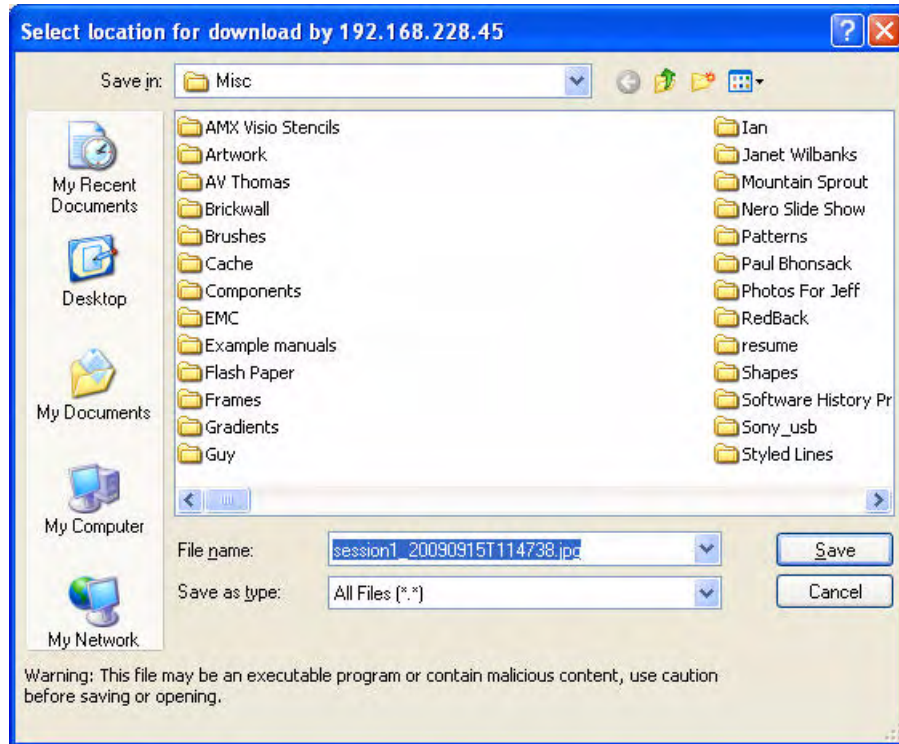


FIG. 127 Select Location for Download dialog

5. Select a target directory, and click **Save**.
6. The application notifies you that the file has been saved (FIG. 128):

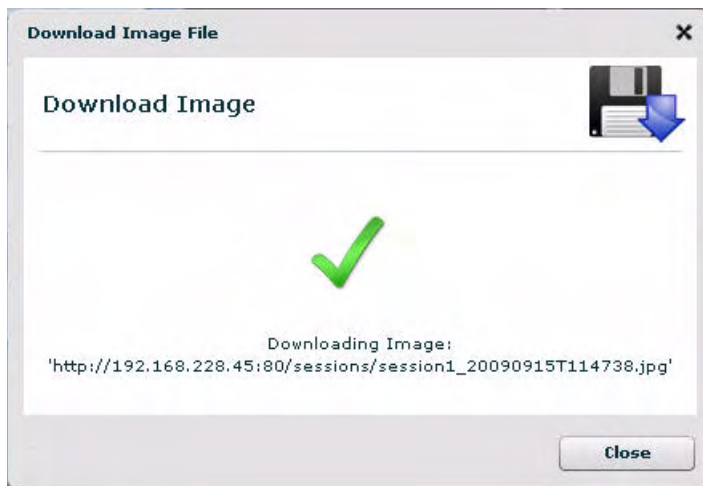


FIG. 128 Download Image File dialog

7. Click **Close** to return to the main application window.

Printing Captured TakeNote Image Files

1. Launch the AMX TakeNote Web application. If the application is already open, select **File > Refresh** to refresh the image list.
2. In the Thumbnail Images window, select a file that you want to print.



Image files must be printed one at a time (multi-selection is not supported for printing files).

3. Press the **Print** button (FIG. 126).



FIG. 129 Print button

Alternatively, select **Image > Print Image** from the Menu Bar.

4. Select a target printer in the *Print* dialog.
5. Click **Print**.

Deleting Captured TakeNote Image Files

1. Launch the AMX TakeNote Web application. If the application is already open, select **File > Refresh** to refresh the image list.
2. In the Thumbnail Images window, place a check in the checkbox of each image file that you want to permanently delete from the TPI-PRO/DVI's local disk (FIG. 130).

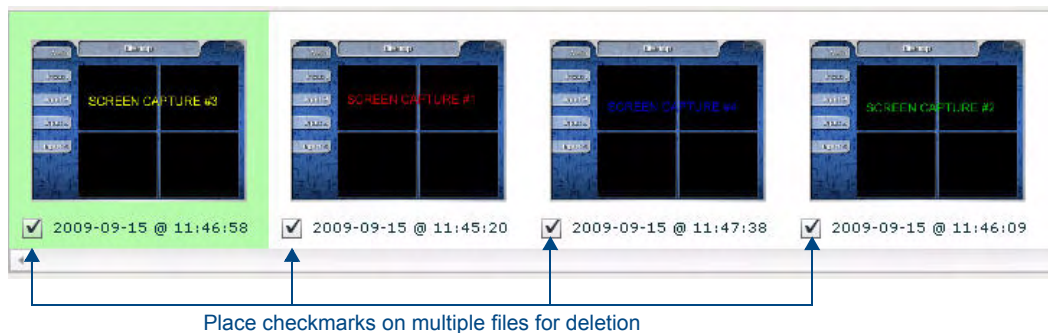


FIG. 130 Multiple files checked for deletion

3. Press the **Delete** button (FIG. 126).



FIG. 131 Delete button

Alternatively, select **Image > Delete Image** from the Menu Bar.

4. The application prompts you to confirm this action before deleting any files, via the *Delete Selected Images* dialog (FIG. 132):

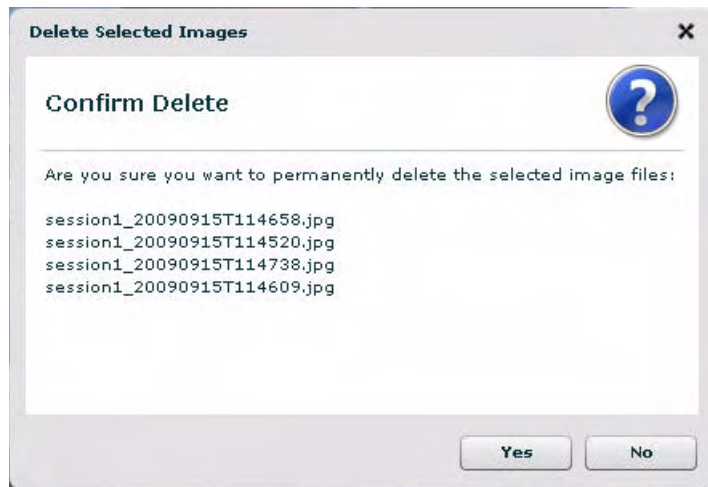


FIG. 132 Delete Selected Images dialog

5. Click **Yes** to proceed.
6. The application notifies you that the selected file(s) have been deleted (FIG. 133):

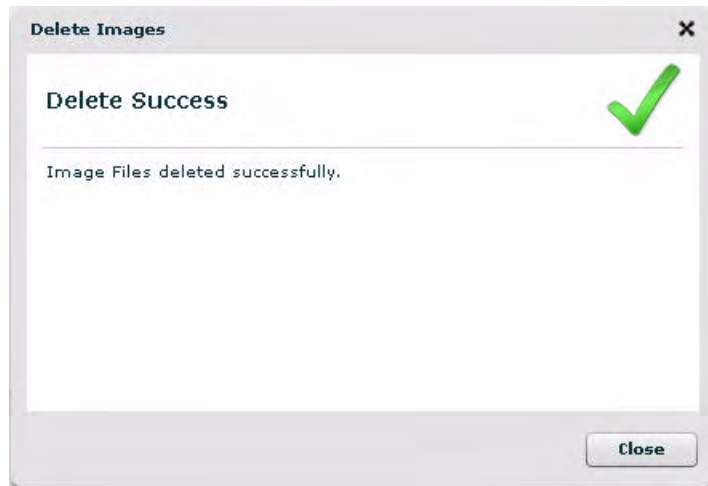


FIG. 133 Delete Images dialog

7. Click **Close** to return to the main application window.

Troubleshooting

Overview

This section provides solutions to possible hardware/firmware issues that could arise during the common operation of the TPI-PRO.

Troubleshooting Information	
Symptom	Solution
Manifest.xma can not be found. An error occurs when sending a file to a G4 panel.	<i>Manifest.xma</i> is the file that contains the listing for all the files. If you see this error again, before attempting to send the file, uncheck the Smart Transfer box. It may be necessary do a Full Clean.
The video pages appear blank upon TPI-PRO restart.	Wrong input type may be selected. Go to Video Settings page and select the appropriate input type for that input.
When using G4 WebControl to communicate with a target TPI-PRO, a VNC Server dialog appears on my screen.	<ul style="list-style-type: none"> During a WebControl connection to a target TPI-PRO you are prompted with a G4 Authentication dialog which asks you to enter the assigned password for the TPI-PRO (before gaining access). If you are ever prompted with a VNC Server dialog, you must enter the IP Address of the target panel. This can be found within the Setup > Protected Setup > System Connection page. <ul style="list-style-type: none"> This IP Address of the TPI-PRO appears within the IP Settings section of this page. Enter the IP Address and click OK. You will then be prompted with the G4 Authentication popup where you must enter the TPI-PRO's WebControl password.
The image on my video page isn't centered and/or aligned properly even though I'm using the RGB/Video Setup page alignment tools.	<ul style="list-style-type: none"> Before an image can be displayed onto a touch panel or other monitor it must first be positioned to occupy the available visible space on the panel/monitor. After completing those tasks, use the monitor's video controls to stretch and move the incoming video so that the borders of the desired resolution pattern follow the edges of the screen without disappearing. There are normally 60 seconds before the resolution times-out, but you can press the front panel RESOLUTION button again several time to return to the previous resolution pattern and continue setting-up the monitor. Once these baseline alignments are done, use the RGB controls to complete the final positioning of the incoming image/video.
I can't seem to connect to a NetLinx Master using my NetLinx Studio 2.8.	<ul style="list-style-type: none"> From the Settings > Master Comm Settings > Communication Settings > Settings (for TCP/IP), uncheck the "Automatically Ping the Master Controller to ensure availability" check box. The ping is to determine if the Master is available, and to reply with a connection failure instantly if it is not. Without using the ping feature, you will still attempt to make a connection, but a failure will take longer to be recognized. Some firewalls and networks do not allow pingging, though, and the ping will then always result in a failure. When connecting to a NetLinx Master controller via TCP/IP, the program will first try to ping the controller before attempting a connection. Pingging a device is relatively fast and will determine if the device is off-line, or if the TCP/IP address that was entered was incorrect. If you decide NOT to ping for availability and the controller is off-line, or you have an incorrect TCP/IP address, the program will try for 30-45 seconds to establish a connection. <p>Note: If you are trying to connect to a Master controller that is behind a firewall, you may have to uncheck this option. Most firewalls will not allow ping requests to pass through for security reasons.</p>

Troubleshooting Information (Cont.)	
Symptom	Solution
After downloading a panel file or firmware to a G4 device, the device behaves strangely.	<p>Symptoms include:</p> <ul style="list-style-type: none"> • Having to repeat the download. • Inability to make further downloads to the panel. May get "directory" errors, "graphics hierarchy" errors, etc. indicating problems with the the internal disk. • Panel will not boot, or gets stuck on "AMX" splash screen. • Other problems also started after downloading to a new panel or a panel with a TPD4 file that takes up a considerable amount of the available disk space. <p>Cause:</p> <ul style="list-style-type: none"> • If the G4 device already contains a large enough file, subsequent downloads will take up more space than is available and could often corrupt the disk. The demo file that typically ships with G4 panels is one such file. <p>Solution:</p> <ul style="list-style-type: none"> • DO NOT download TPD4 files (of large size) over the demo pages, or any other large TPD4 file. • First download a small blank one page file to the G4 panel using the Normal Transfer option to send/download the page. Reboot the device, then do your regular file or firmware download.
After copying and pasting images from the TPI-PRO's setup pages, the images appear over-sized on my pages.	<p>Verify that you are using TPDesign4 version 2.11 or higher.</p> <ul style="list-style-type: none"> • Previous versions of TPD4 did not fully support copying and pasting TPI-PRO setup pages components into Panel designs. • TPDesign4 is available to download from www.amx.com.



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